UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

LOCKHEED MARTIN TRANSPORTATION SECURITY SOLUTIONS, AN OPERATING UNIT OF LOCKHEED MARTIN CORPORATION, Plaintiff, -against- MTA CAPITAL CONSTRUCTION COMPANY and METROPOLITAN TRANSPORTATION AUTHORITY, Defendants.	09 Civ. 4077 (PGG)
TRAVELERS CASUALTY AND SURETY COMPANY OF AMERICA, FEDERAL INSURANCE COMPANY, AND SAFECO INSURANCE COMPANY OF AMERICA, Plaintiffs, -against- METROPOLITAN TRANSPORTATION AUTHORITY, MTA CAPITAL CONSTRUCTION COMPANY, NEW YORK CITY TRANSIT AUTHORITY, and LOCKHEED MARTIN COOPERATION, Defendants.	09 Civ. 6033 (PGG)

DEFENDANTS' STATEMENT OF MATERIAL FACTS PURSUANT TO RULE 56.1

Pursuant to Rule 56 of the Federal Rules of Civil Procedure and Local Civil Rule 56.1 of the Southern District of New York, Defendants Metropolitan Transportation Authority ("MTA") and MTA Capital Construction Company ("MTACC" or, collectively, "Defendants") state that the following material facts are not in dispute:

1

I.   BACKGROUND

    A.   ADD SECTION HEADING

    1.   The Metropolitan Transportation Authority is a public benefit corporation created and established by Title 11 of the New York Public Authorities Law. N.Y. Pub. Auth Law §§ 1260, *et seq.*; Ex. J4, MTA's Answer and Countercls. to Pl.'s Am. Compl. (July 20, 2009) ("MTA Countercls.") at ¶ 3.

    2.   Among its missions are the "continuance, further development and improvement of commuter transportation" within the region served by the MTA and the "develop[ment] and implement[ion] [of] a unified mass transportation policy" for the region served by the MTA. N.Y. Pub. Auth. Law § 1264. Id.

    3.   Every day, the MTA provides to the region's citizens and visitors, through its affiliated operating agencies, approximately 8.5 million passenger rides on the system's subways, buses and commuter rails. In addition, the Triborough Bridge and Tunnel Authority ("B&T"), an MTA agency, serves the region's motorists with nine bridges and tunnels, providing passage for roughly 850,000 vehicles each weekday. Ex. J4, MTA Countercls. at ¶ 4.

    4.   The MTA Capital Construction Company ("MTACC") was formed by the MTA in 2003 to manage major capital expansion and infrastructure projects. Among the projects it has overseen are the Fulton Transit Center, the East Side Access project (bringing Long Island Rail Road service to Grand Central Station), the Second Avenue Subway, and the extension of subway service to the far West Side of Manhattan. Ex. J4, MTA Countercls. at ¶ 5; Grill Tr. 20:8-23.

    5.   MTACC is also responsible for overseeing security-related capital construction projects intended to enhance the ability of the MTA and its affiliated agencies to protect its

millions of customers and vast facilities.   One of those projects is the subject of this litigation. Ex. J4, MTA Countercls. at ¶ 6.

6.   After the attack on the World Trade Center by terrorists on September 11, 2001, the MTA and its affiliate agencies developed a Security Program to assess, develop and implement anti-terrorist and other security related measures to enhance public safety as well as to address the continued threat to the security of the MTA transportation network. Ex. MTA1, Attach. at p. 1.

7.   To accomplish the goals of the aforesaid Security Program, MTA prepared a request for proposals (RFP) for a contract, Contract C-52038 for the Design, Development, Furnishing and Installation of an Electronic Security System (IESS) and Security Operations (C3) Centers at Various Locations (hereafter, "the Contract"), which "covers a state-of-the-art electronic security system which will help prevent, detect, alert, protect, respond to and recover from threats or incidents through using equipment for surveillance of critical facilities, and the creation of security command centers throughout the region." Id.; see also Ex. J11, Vol. 1A § 1.0.

8.   The RFP documents were prepared by the Joint Venture of Parsons Brinkerhoff Quade and Douglas/Parsons Transportation Group of New York ("PB/PTG"), which was awarded a contract by the MTA on May 21, 2004, for the "planning, conceptual and preliminary design, and development" of an IESS and set of C3 centers and an operational response plan." Ex. MTA2, MTA Staff Summary (Nov. 28, 2005) at p. 1; see also Christen Tr. 24:18-25:3, 26:23-27:8; Patel Tr. 41:17-20.

9.   The plans and specifications prepared by PB/PTG constituted the bid documents that were used for the procurement of the Contract. See Christen Tr. 27:5-8.

10.   The RFP called for the contractor to "furnish and install an Integrated Electronic Security System (IESS) consisting principally of access control devices, intrusion sensors, and CCTV cameras with recording devices at various high risk facilities." Ex. MTA1 at Attach. p. 1. The monitored locations at these facilities were to be "connected to Command, Communication and Control (C3) centers at MTA, LIRR, MNR, B&T and NYC Transit which, in turn [were to be] interconnected to private security personnel with comprehensive situational awareness…" (The work to be performed under the RFP is referred to hereafter as either the "IESS/C3" or the "System") Id.; see also Patel Tr. at 44:25-45:21.

11.   The IESS/C3 was intended to provide the security personnel with the ability "to assist responders in coordinating their actions during an incident." Ex. MTA1 at Attach. p. 1.

12.   MTA issued a Request for Interest and Qualifications in February, 2005, to 19 firms selected for their experience in the field. Id. Fifteen firms responded with submissions. MTA convened a selection panel to review the submissions, and determined that three of the firms had the most relevant experience – Lockheed Martin ("Lockheed"), Science Applications International Corp ("SAIC") and Siemens Transportation Systems ("Siemens"). Ex. MTA1 at Attach. p. 1.

13.   On May 6, 2005, MTA issued the RFP. The RFP was issued in the name of "Metropolitan Transportation Authority acting by the MTA Capital Construction Company." (RFP cover – Contract Vol. 1, Table of Contents).[1]

14.   The contract procurement process was administered on behalf of the MTA and MTACC by the Materiel (also referred to as Procurement) Division of the New York City Transit Authority ("NYCT"). Grill Tr. 26:15-23.

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[1] Unless otherwise specified, MTA shall refer to the MTA and MTACC collectively.

15.   On July 22, 2005, the three finalists each submitted their technical proposals. Ex. MTA1 at Attach. p. 1.

16.   A Selection Committee was convened to review the technical proposals and observe the oral presentations of the finalists. One of the finalists, Siemens, was eliminated from consideration because its Proposal took too many exceptions to the technical specifications of the RFP. Patel 6, at p1. Id.

17.   MTA thereafter engaged in discussions with the two remaining finalists – SAIC and Lockheed, after which best and final offers were submitted. Id. at p. 2.

18.   MTA and Lockheed also communicated in writing during the RFP process, which included Lockheed's written responses to written questions posed by MTA. Ex. MTA3, at Resp. to Questions Rec'd July 29, 2005, p. 1, Resp. to Questions 65-70 Rec'd July 29, 2005, p. 1; see also Patel Tr. 119:16-122:17.

19.   On August 12, 2005, William DeSantis, the NYCT Chief Procurement Officer, issued a letter to Mark Bonatucci, Director of Advance Security Programs at Lockheed Martin Transportation Security Solutions ("LMTSS"), wherein Lockheed was notified that it was NYCT's intent to seek approval of the award of a contract as negotiated to Lockheed. The letter identified the documents comprising the contract, which included a document referred to as the Agreement, the Contract Terms and Conditions; the Special Conditions; the RFP Data Sheet; the Price Schedules; and the documents issued as part of the RFP, as modified through addenda or negotiations. Ex. MTA4.

20.   On August 31, 2005, MTA awarded Contract C-52038 to Lockheed for the sum of $212,752,788. Ex. MTA5.

21.   The Contract was executed that same day by Richard Hughes, Lockheed Director of Business Practice and Contracts. Ex. J10.3 at pp. 1, 4.

22.   On April 3, 2006, the MTA issued an additional work order ("AWO"), known as "AWO 1" which added (i) the 13 remaining New York City Transit under river tunnels to the IESS/C3 system; (ii) a new police facility to be constructed at Long Island City ("LIC"); and (iii) additional work at Verrazano Bridge C3 facility. Ex. MTA6. The URT work was to be performed by Lockheed for the negotiated sum of $60,627,000; the facilities work was to be performed for the negotiated sum of $20,000,000, bringing the total of AWO 1 to $80,627,000. Ex. MTA6.

23.   AWO 1 was agreed to and signed off by Richard Hughes, on behalf of Lockheed. Id.

24.   After the issuance of AWO 1, the adjusted price for the Contract totaled $293,379,788. Id.

B.   Key Individuals

i.   MTA Personnel and Contractors

25.   Ashok Patel, P.E. served as the Program Manager for the overall security program for MTA Capital Construction and the program manager running the day-to-day aspects of the Project until late 2006. Patel Tr. 22:13-22.

26.   Joseph Christen, P.E., as design manager, oversaw preparation of the initial design package for the Project, which was awarded to the Joint Venture of Parsons Brinkerhoff/Parsons Transportation Group ("PB/PTG"). Christen 23:18-25:14.

27.   The August 31, 2005, award letter notified Lockheed that Christen would be the "Construction Manager/Engineer" for the Project. Ex. MTA5.

28.   On May 4, 2006, Lockheed was notified by MTA that Kenneth Shields, P.E. was replacing Mr. Christen as Project Engineer, and that Mr. Christen would continue serving as Design Manager. Ex. MTA7.

29.   Mysore Nagaraja was the President of the MTACC from July 2003 until his retirement from the MTACC in 2008. Nagaraja Tr. 22:17-24:17; Patel Tr. 198:20-21.

30.   Following Mr. Nagaraja's departure, Veronique (Ronnie) Hakim, MTACC Vice-President and General Counsel, served as acting President, until Michael Horodniceanu assumed the position of MTACC President in late July 2008. Pezik Tr. 546:15-547:10; Nagaraja Tr. 62:2-6, 203:8-11, 238:20-23;   Horodniceanu Tr. 13:23-16:9.

31.   Ron Pezik succeeded Mr. Patel as program manager for the MTACC on the Project. Nagaraja Tr. 238:18-19.

32.   Terrence Fetters helped draft the RFP for the MTA, Fetters Tr. 40:7-24, then worked as a part of the MTA staff. Fetters Tr. 46:8-19. He reported to Joe Christen and then to Ron Pezik. Fetters Tr. 43:22-24; 47:4-11. After the contract was awarded to Lockheed, he became the liaison to Bridges & Tunnels. Fetters Tr. 42:10-15.

33.   John Hyland was the Long Island Railroad's Project Manager on the Project. Patel Tr. 168:10-15.

ii.   Lockheed Personnel and Contractors

34.   Linda Gooden was an Executive Vice President for Lockheed Information Systems and Global Services ("IS&GS") in 2008. Blizzard Tr. 92:24-93:2; Humpton Tr. 57:10-11.

35.   Joan Adams was Lockheed's Vice President of Performance Excellence in the IS&GS sector. Ex. MTA8.

36.   Judy Marks was President of Lockheed Martin Transportation Security Solutions ("TSS"), a division within Lockheed, from around June 2005, Marks. Tr. 17:20-18:5, until December 2008. Marks Tr. 30:6-10.

37.   Carlaine Blizzard was a Vice President for Lockheed's Secure Enterprise Solutions ("SES", a division within TSS), the department with oversight of IESS Contract, starting in July 2006. Blizzard Tr. 34:11-24. She reported to Judy Marks. Blizzard Tr. 31:11-17.

38.   Barbara Humpton became SES Vice President in September 2008. Humpton Tr. 32: 10-18.

39.   James Gaughan was the Director in charge of the IESS project and reported to Carlaine Blizzard. Blizzard Tr. 34:25-35:3.

40.   Gaughan replaced Mark Bonatucci as Program Director on the IESS project in September-October 2006. Ex. MTA9.

41.   Bill Krampf was Director of Engineering for SES and Civil Mission Solutions, reporting to Chris Horne. Krampf Tr. 30:16-32:9.

42.   Jim Williamson was the Director of Engineering for SES starting in November 2005, with responsibility for the IESS Project. Williamson Tr. 41:17-19.

43.   Williamson reported directly to Bill Krampf. Williamson Tr. 37:18-23.

44.   Mark Bonatucci was Lockheed's "Capture Manager" for the IESS project. Bonatucci Tr. 37:24-38:3; Gaughan Tr. 38:13-20; Lovitt Tr. 38:22-39:7.

45.   Kenneth Turner was a member of the technical team reporting directly to Bonatucci and the System Architect for the IESS/C3 Proposal.   Turner Tr. 18:10-19:3, 30:4-6.

46.   Fred Robinson was a key member of the technical team. He was the Proposal chief engineer and performed technical leadership activities for the Proposal. Ex. MTA10; Robinson Tr. 33:11-25.

47.   Brad Lovitt, Program Manager of Advanced Programs for Lockheed Martin Transportation and Security Solutions, served as the IESS System Lead and, subsequently, as System Engineering Manager (which title was changed to "Manager"). Ex. J9.1, Proposal Vol. 1 § 1.1 at p. 2; Lovitt Tr. 83.6-18.

48.   Phillip Thurston was Lockheed's Director of Engineering starting in March 2008. Thurston Tr. 27:19-28:4.

iii.   Third Parties

49.   Linda Martinez is an experienced engineer at Systra, and was chosen to be the lead independent Commissioning Agent on the IESS project, Martinez Tr. 47:14-19, a role she had filled on a number of other projects. Martinez Tr. 52:2-15.

50.   Martinez led the commissioning team on the project, which consisted of Martinez and three others from Systra. Martinez Tr. 348:14-20.

51.   John Halsema was the Chief Technology Officer for Intergraph's Security, Government & Infrastructure Division, and he helped to define the overall system architecture and approach for the IESS Project. Halsema Tr. 13:8-18, 14:10-22.

52.   John (Jack) Breitbeil was Intergraph's Project Manager for their contract with Lockheed. Breitbeil Tr. 7:13-22.

53.   Tammi Thomas was a Vice President in Intergraph's Security, Government & Infrastructure Division, and was the responsible manager for the time and materials contract between Intergraph and Lockheed. Thomas Tr. 22:24-23:6; see also Ex. MTA 11.

II.   KEY CONTRACTUAL TERMS

A.   The Agreements

54.   Included among the Contract documents is a 21-page document (exclusive of title page and table of contents) entitled "Agreement." Ex. J10.2.

55.   The Agreement identified the documents comprising the Contract between Lockheed and MTA. Those documents consisted, in large part, of the following:

   a.   the Agreement itself;

   b.   the Special Conditions (SC1 – SC17);

   c.   documents comprising the "Scope of Work," as described in the RFP Overview sections and in Section II of the Agreement;

   d.   the MTA's RFP volumes 1-6 and all attachments, exhibits, and appendices, including Addenda Nos. 1 through 10;

   e.   the Contractor's "conformed" Proposal;

   f.   the Contractor's Best and Final Offer (the "Price Schedule")

   g.   the bonds approved by MTA.

Id. at § IA, p. 2-3.

56.   The parties agreed to exclude RFP Volumes VI A (6A) and VI B (6B) from the Contract documents. Id. at § IB.1-.2, p. 3.

57.   The documents comprising the "Scope of Work" were set forth in Section II of the Agreement and include RFP volumes 1, 1A, 2A through 2F, 3, 5, certain diagrams, and addenda. The security sensitive system specifications are largely contained within volumes 1A, 2B (which contains Specification Division 1AB), and 2F (which contains Specification Divisions 19 and 25). Id. at § IIC, p.5-6.

58.   The Agreement provides that if there is an inconsistency between or among the provisions of the Contract Documents, unless the Engineer provides otherwise, the more stringent provision or requirement will control. Id. at § IID, p. 6.

59.   In the event where none of the conflicting provisions are clearly the more stringent, the Agreement provides for an order of precedence among the documents, as follows:

    a. the Agreement;

    b. the Special Conditions and the Contract's "Terms and Conditions," including the "Data Sheet" changes and changes made by addenda;

    c. the Scope of Work (including any addenda);

    d. The Contractors fully conformed Technical Proposal "except to the extent that the Technical Proposal exceeds the requirements of the Scope of Work, at the sole option of the Authority (the MTA), such Technical Proposal shall take precedence over such Scope of work";

    e. The remaining RFP documents.

Id. at § IID, pp. 6-7.

60.   Section III of the Agreement governs the Contractor's warranties, including equipment and software warranties and warranty performance obligations. These warranty provisions include, but are not limited to, the following:

    a. the equipment and software shall satisfy the MTA's business requirements and be fit for the MTA's intended uses as described in the Scope of Work and Contract documents;

    b. the equipment and software shall individually and as an integrated system be free from defects in design, material and workmanship and function properly and in conformity with the Contract Documents;

    c. all functions shall operate as described in the Contract documents;

    d. "…that the software shall perform accurately and reliable and shall perform at least the functions described in and in accordance with the Contract documents and in accordance with any warranty or representation made in … the Contractors Technical Proposal;

11

  e. Any software program provided by the Contractor "will be fully compatible and will interface completely with each other software program provided hereunder and with the Equipment, such that the equipment and software combined, will perform a fully functioning System of Systems meeting all of the requirements of the Contract documents"; and

  f. the software will interface with other software programs as required by the Contract.

Id. at § IIIA, pp. 8-9.

61. Section IV contains provisions governing the Contractor's obligations in connection with furnishing software and hardware for the Project. Among Section IV's requirement was that the Contractor provide MTA with the latest versions of the software used, including updates through the end of the warranty period, which was to run one year from the Substantial Completion of the Contract. Id. at §§ IIID, p. 9, IVA(3), p.13.

B. Volume 1A – Brief Description of the Work

62. Volume 1A of the Contract provided a brief overview of the work to be performed under the RFP. See Ex. J11, Vol. 1A, Brief Description of the Work.

63. Volume 1A states that the system was supposed to "be designed to protect the MTA and its Agencies' vast network of infrastructure spanning their entire service area that provides public transportation services (buses, subway, rail, and tunnels and bridges for vehicular traffic)." Id. at Overview.

64. The system was to "be a secure, integrated, automated [system] designed to facilitate normal and emergency operations across the MTA." Id. at § 1.0.

65. The control centers were supposed to "provide security personnel with a comprehensive Situational Awareness (SA) and help responders coordinate their actions during an incident." Id.

66.   The system was to enable the five agencies to respond in either a coordinated or an autonomous manner depending on the scale of the problem. The system was to provide a "Common Operational Picture (COP) vertically within each Agency and horizontally across the Agencies." Id.

67.   The IESS/C3 System was to be deployed at "critical and sensitive facilities with the aim of detecting, deterring, identifying, delaying, and/or preventing terrorist security threats" through the technologies to be employed in the system. Id. at § 1.1(a).

68.   Operationally, the IESS/C3 system was to comprise an integrated electronic security system reporting to a series of C3 Centers. IESS devices, including access control devices, intrusion detection sensors, CCTV cameras and recording devices, among other items, were to be installed at "monitored locations." Id. At those locations, security data was to be aggregated and stored, and then routed to C3 centers based on business rules to be determined by the agencies. Id.

69.   The system was to include three echelons of C3 Centers: a Central C3 at the MTA Police Department, 4 Regional C3s, at each agency; and then within each agency, local C3 centers. Id. at §§ 1.1(a), 2.2.

70.   The C3 Centers were to be the "hubs" of security information. See id. at § 2.5, p. 9-10. "Video, alarms, voice, and other types of data, need to be communicated and transmitted/received between various monitored locations as well as the C3 Centers." Vol. 1A, § 2.5. Volume 1A provided that "[a]ll of the C3 Centers shall be interconnected so that they can share voice, video and data from Agency-monitored locations to other Agency and MTA Central C3 Centers." Id. at § 2.5, p. 9.

71.   In addition, the system was supposed to be able to assist the MTA in its security interactions with local and state law enforcement agencies, local first responders, the States of New York and Connecticut, and federal agencies including the FBI. Id. at § 1.1.a.

72.   Volume 1A provides that a key component of the system was the coordination of all of its various parts. The system was required to "seamlessly integrate security function into each individual Agency's core operations, exploit to the fullest extent possible and integrate legacy systems, and utilize open architecture industry standard Commercial Off-The-Shelf (COTS) products." Id. at § 1.0.

73.   Volume 1A provided that design and testing were to be critical activities during the development of the system. See id. at §§ 1.2, 1.4, 1.5. This volume stated that, "Various activities involved in this project include but shall not necessarily be limited to the design development, proto-type testing, furnishing and installation, software development and systems integration, training, testing and commissioning." Id. at § 1.2.

74.   Section 1.4 of Volume 1A describes the software and systems integration work for the Project. This section provided that "the Contractor *use* commercial-off-the-shelf (COTS) products and software," but that "[u]se of a middleware application is expected for seamless integration of various systems." Id. at § 1.4, p. 5 (emphasis added).

75.   The Contractor was to be "responsible for the seamless integration of the new systems, as well as integration of specified legacy systems at various facilities," and Lockheed was required to "be the systems integrator." Id.

76.   Volume 1A also identified as part of the work a new "Police Communications System" that was to be a "system of systems in itself consisting of voice, video and data communications and a Computer Aided Dispatch (CAD) system for the MTA Police Operations

14

including a new . . . [CAD] at the new MTA Central C3 Center as the MTA's primary Police Communications Operations Center. . . ." Id. at § 2.3, p. 9.

77.   Volume 1A also highlighted that the IESS/C3 system required "formal testing and commissioning" prior to its deployment, and referred the Contractor to Vol. 2A § 1X (Commissioning).   Id. at § 1.5.

C.   Contract "Terms and Conditions"

78.   The Terms and Conditions portion of the Contract, included within Volume 1, governs, among other things, provisions relating to Time (Chapter 2), Price and Payments (Chapter 3), Changes to the Contract (Chapter 4), Default (Chapter 7), and the Authority of the Engineer (Chapter 8). See Ex. J10.4.

79.   The Contractor was required to achieve Substantial Completion of the "Work" (defined in Article 1.02(46) as the scope of work or the work to be done as described in Article 1.01), within 36 months of the issuance of the Notice of Award; thus Lockheed was required to achieve Substantial Completion by August 31, 2008.[2] Id. at Art. 2.01.

80.   The "Substantial Complete Date" date was subject to extension by the MTA upon certain conditions as set forth by Article 2.05. See id.

81.   Under Article 2.02, "Substantial Completion" must be declared by the Engineer "upon his determination that the Scope of Work with respect to the IESS/C3 as set forth in Section III of the Agreement, and all other Work except for Remaining Work as defined in Article 1.02, Definitions, is fit and complete for its intended purpose." See id. at Art. 2.02(a).

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[2] Each chapter of the Terms and Conditions is divided into "Articles." References herein to an "Article" of the Contract shall refer to the Terms and Conditions section of the Contract Documents.

82.   The Engineer's determination to issue a "Certificate of Substantial Completion" is contingent upon, among other things, findings by the Engineer that Contractor has completed all Project Milestones and delivered all Project Deliverables to the Engineer's satisfaction, and that all operating systems have been tested and approved to the Engineer's satisfaction. Id.

83.   Article 2.02(b) governs "Beneficial Use." See id. at Art. 2.02(b). "The words 'Beneficial Use' shall mean a written determination by the Engineer that a discrete portion of the Work or identified equipment is sufficiently complete and fit for its intended purpose, in accordance with the Contract, that the Authority is able to physically occupy such portion of the Work or utilize such equipment." Id. at Art. 1.02(4).

84.   Article 2.02(b) provides that a Beneficial Use certificate may be issued for any portion of the work as set forth in the Special Conditions as subject to such a certification. Id. at Art. 2.02(b). The Beneficial Use certification is subject to the same procedures governing the issuance of the Certificate of Substantial Completion. See id.

85.   Special Conditions Section 2 (SC2) provides for five Beneficial Use Certifications to be issued on the Project - one for each agency comprising the System: Metro North R, LIRR, NYCT, B&T, and MTA Central C3, for the MTA Police Department (MTAPD). Ex. J10.5 at SC 2(b), pp. 2-3.

86.   SC2 provided that only the "Hardware and Equipment items subsumed within the respective portions of the [W]ork will be the subject to these Beneficial Use Certifications. (No Software or Software-related items subsumed within the respective portions of Work will be the subject of these Beneficial Use Certifications . . . .)" Id.

87.   Article 7.01 of the Contract, under the Default chapter, defines "Event of Default" as "a material breach of the Contract by either party." Ex. J10.4 at Art. 7.01.

88.   Events of Default include, without limiting the generality of the foregoing "material breach" standard, a determination that performance of the Contract is unnecessarily or unreasonably delayed, or that either party is willfully violating the Contract, or that the Contractor has abandoned the Work. See id.

89.   Subsequent to a determination that the Contractor is in default, if it is determined "for any reason whatsoever" that the "determination was improper, unwarranted, or wrongful, then any such termination shall be deemed for all purposes to be a termination for convenience in accordance with Article 2.09." See id. at Art. 7.03(e).

90.   Article 2.09 provides the MTA may terminate the Contract in its sole discretion, with or without cause. See id . at Art. 2.09.

91.   In the event of a termination for convenience, Article 2.09 provides for an amount to be paid to the Contractor in accordance with the terms therein. See id. Article 2.09(b), (c) and (d) provide that the Contractor will be paid any amount due for work performed up to the point of termination, in accordance with the Contract's price schedule (unless the Contractor's actual costs are less than that) and 10% of the remaining contract balance (i.e., the difference between the amount paid to the Contractor and the remaining amount under the Contract). Id.

92.   Chapter 8 of the Contract governs the Authority of the Engineer. Article 8.01(d) provides that, "The Contractor shall be bound by all determinations or orders and shall promptly obey and follow every order of the Engineer, including the withdrawal or modification of any previous order and regardless of whether the Contractor agrees with the Engineer's determination or order." Id. at Art. 8.01(d).

i.   **IESS C3 System Specifications: Technical Specifications**

93.   The Command, Communication and Control Specifications are contained, in large part, in Specification Division 1AB, which is included within Volume 2B of the Contract. See

Ex. J13, Vol. 2B Div. 1AB – Command, Control and Communications (C3 Centers) ("Division 1AB").

94.   Division 1AB has 19 sections, including 1AB4 (Command and Control Centers); 1AB6 (Communications Systems); 1AB7 (Interfaces); 1AB11 (Software); and 1AB12 (Project Management). See id.

95.   Software Design and Management Specifications are set forth at Division 25, which is contained within Volume 2F. See Ex. J15.

96.   Volumes 2B (which includes Division 1AB) and 2F (which contains part of Divisions 19 and 25) are designated as "Confidential and Privileged, MTA Security Sensitive and Non-Foilable." See Exs. J13, J14,J15.

97.   Section 1AB4, governing the Command and Control (C2) system, sets forth functional requirements for certain aspects of the IESS/C3 System, including:

   a.   incident management and decision support for the security operators (referred to as "C2 Users") (Ex. J13.4, § 1AB4 at 4.1.);

   b.   the functional features required for network communication and intrusion sensors, and CCTV Video (Id. at 4.3.);

   c.   the "common operational picture" requirements, including those relating to the "graphical use interface" (GUI) (Id at 4.5.);

   d.   "publish/subscribe" requirements (Id. at 4.6.1.);

   e.   alarm management (Id. at 4.6.3.); and

   f.   information storage and playback (Id. at 4.7.).

98.   Within Contract Specification 1AB4, there are many references to system functions, including automated functionality, that Lockheed's system failed to deliver. (Affidavits). The functionality stated in 1AB4 required, among many other things,

   a. that "decision support" be automated based on business rules (Id. at 4.1.2.);

   b. that the system have the ability to aggregate and analyze alarms (Id. at 4.2.);

   c. that the C2 Users have an integrated display (Id. at 4.5.);

   d. that through the GUI, recorded video may be easily retrieved; that alarms result in instant pop-up view, with cameras panning to the right point (Id. at 4.3.3, 4.4.2.);

   e. that recorded video be automatically displayed upon the triggering of an alarm (Id. at 4.4.3);

   f. that alarms, alerts and notifications be automatically routed to designated users according to the business rules (Id. at 4.1.6, 4.6.3.3).

99.   Lockheed had not provided any of this functionality as of the time of default. See Declarations of Hansen, Murphy, Rahle, Ryan, and Viviano.

   ii.   **IESS C3 System Specifications: Project Management And Record Keeping**

100.   To manage the work, the Contract required that a system be in place to identify each requirement, and track the status of each of those requirements through the course of the Project to ensure that, by the end of the Project, all of those requirements have been satisfied by the Contractor. See infra ¶¶ [X-X].

101.   Section 1AB12.5.4 required that Lockheed set up a "requirements traceability matrix" ("RTM") to be used as the Project's recordkeeping system. This required that Lockheed use a specialized software (known as Requisite Pro) to extract the Contract's mandatory requirements for the Project from the RFP documents, and to assign to each requirement a unique identification number or tag. Ex. J13.12 § 1AB12 at 12.5.4.

102.   Each contract requirement with its corresponding identification number was to have been documented in the RTM. Id. at p. 20.

103.   The RTM also had to include so-called "derived" requirements. "Derived" requirements are defined as those "derived from system analysis that are not explicitly stated in the Contract Documents but are introduced by the selected Contractor architecture, design, user needs, or operational considerations. . . ." The Contract further provided that these requirements were to be "identified and documented in the identical manner as requirements explicitly stated in the Contract. . . . " Id. at p. 21.

104.   Derived requirements were to be marked as "supplemental" requirements, added to the RTM and managed in the same manner as all other software requirements. Ex. J15, § 25A at 1.3.1(g).

105.   The RTM was also supposed to provide information or data related to each requirement, including references to the categorization of each requirement, the assigned functional allocation (e.g., CCTV, Access Control), the development phase associated with each requirement, and test documentation concerning each requirement as appropriate. Ex. J13.12, § 1AB12 at 12.5.4; Ex. J15.2, § 25B at 3.1.

106.   Lockheed was obligated to update the RTM for each phase of the Project by the Contractor, but updates, and any changes to requirement categories, were subject to MTA approval. Id.

107.   The Contract provided that the RTM would be used by MTACC to verify that each of the requirements identified in the RTM had been addressed. Ex. J13.12, § 1AB12 at 12.5.4.

108.   The Contractor was required to "test or demonstrate every requirement in the RTM." Ex. J15.2, § 25B at 3.1.

109.   The Contract required that each "testable" requirement be allocated to a testing phase. Additionally, the RTM was to include a record of the testing status associated with each "testable" requirement, including whether a test was conducted, and if so, the results of the test (e.g., "pass," "fail," etc.). Ex. J13.12, § 1AB12 at 12.5.4; Ex. J15.2, § 25B at 3.1.

110.   The Project Management and Software Testing specifications in the Contract provided that software testing was to be conducted as part of a series of developmental phases: planning; preliminary design; final (or "critical") design; implementation (which includes hardware and software testing prior to factory acceptance testing); factory acceptance testing ("FAT"); installation and site testing; transition; and availability demonstration testing, which is the final phase, requiring a 30 day demonstration with no down time. Ex. J13.12, § 1AB12 12.2 at p. 4; Ex. J15.1, § 25A at 1.3.

111.   The Software Testing specifications of the Contract provided that the Contractor perform "complete and comprehensive testing of all IESS/C3 SoS software during all phases of development", and that "*the tests performed . . . prove that each requirement in the RTM (and the Contract Documents) has been met*."   Ex. J15.5, § 25T at 1.0, 2.0.

112.   The tests to be performed by the Contractor were supposed to be designed "to ensure that each development, factory, and field test is comprehensive and verifies the proper performance of the system under test." Ex. J15.2, § 25B at 2.2.1(b).

113.   A "Test and Evaluation Master Plan" or "TEMP" was drafted by Lockheed's agent ARINC. Huggins Tr. 84:17-85:24; Ex. MTA12.

114.   The final version of the TEMP that was posted to the project records is dated July 23, 2007. Ex. MTA13; Fetters Tr. 194:14-24.

115.   There is no record of this version being approved by MTA. Ex. MTA14.

116.   In its first section, the TEMP is described as the document that "defines the plan for validating and verifying that the implemented system meets the requirements, documents the test program strategy to meet the requirements, and describes a set of integrated tests of system hardware and Commercial Off the Shelf (COTS) software. In addition, this document defines the test plans that will be submitted, the sequence of tests and the scope of the test to be performed under this contract." Ex. MTA12.

117.   In systems testing, a "variance" occurs whenever the test results reveal software performance or behavior that varies from what was expected in order to satisfy the requirement under test. Gaughan Tr. 155:3-4; Hughes Decl. ¶19.

118.   The preamble to the Project Management specification provides that the Contractor was to "establish a Variance Tracking System to be used to collect, document and track all variances found during all phases of the IESS/C3 SoS development."   Ex. J13.12, § 1AB12 at p. 3.)

119.   All deficiencies were to be documented as part of the variance tracking system. Ex. J15.5, § 25T at 1.0.

120.   With respect to FAT testing, the Contractor was required to "perform complete and comprehensive Factory Acceptance Testing . . . " and "ensure that all variances be detected during Factory Acceptance Testing and corrected prior to shipment for installation." Ex. J13.12, § 1AB12 at 12.2.5.

121. With respect to installation and site testing, the Contractor was required to "perform complete and comprehensive site testing . . . " and to "address all variances prior to completion of site testing, make all updates and modifications necessary to close each variance, and successfully perform all retesting deemed necessary by MTA-CC." Id. at 12.2.6.

122. If tests indicated that software did not meet the contractual requirements, then the Contractor was required to repair, replace, upgrade or add to the software at no cost to MTA Contract Spec. 25T1.0. Testing was required to be conducted to verify the effectiveness of the corrective action following correction. Ex. J15.5, § 25T at 1.0.

iii. The Independent Commissioning Agent

123. Contract 1X 1.2 provides that the "Contractor shall utilize the services of a firm to be the Commissioning Agent (CA) who shall develop "develop detailed commissioning specifications, coordinate the execution of a testing plan, observe and document performance and verify whether systems are functioning in accordance with the documented design intent and the accepted final design documents." Ex. J12, § 1X at 1.2(a).

124. On the IESS project, the CA was to "[p]rovide a final Commissioning Report" "for each piece of commissioned equipment and system," which would "contain the disposition of the Commissioning Agent regarding the adequacy of the equipment and system, documentation and training meeting the Contract Documents in the following areas: 1) Operations; 2) Maintenance of the C3 Centers; 3) Systems Administration; 4) Maintenance of field equipment; 5) Maintenance of the WAN; 6) Security Policy." Id. at 1.3.2(u).

125. Among the sub-systems, components and equipment to be commissioned under the Contract were the Command and Control ("C2") systems; the C3 Centers; and the CCTV, access control, "less-than lethal," intrusion detection, and voice communication systems. Id. at 2.1.

III.   LOCKHEED'S RESPONSE TO MTA'S RFP (2005-2006)

A.   Lockheed's Proposal Process

126.   Lockheed's Proposal consisted of several volumes: a Proposal Summary (Vol. I), a Technical Proposal (Vol. II), a Management portion (Vol. III), a Price Proposal (Vol. IV), Lockheed's reply to NYCT's "Schedule J" Responsibility Questionnaire (Vol. V), and a Maintenance Plan (Vol. VI).

127.   It was Mark Bonatucci's responsibility, as "capture manager," to ensure that the statements in the Proposal Summary conformed to the statements in the Technical Proposal. Lovitt Tr. 38:22-39:4.

128.   James Gaughan, the business area director, supervised the proposal team to ensure the team was staffed appropriately and performed their roles in a quality manner in order to deliver a "responsible proposal." Gaughan Tr. 38:2-12.

129.   William Krampf provided executive review of the proposal and supported the capture manager while putting the proposal together. Krampf Tr. 41:21-23; 42:11-14.

130.   Bonatucci assigned the task of managing the "Technical Volume" of the Proposal (Volume II) to Brad Lovitt. Lovitt Tr. 35:6-12. Lovitt was the Technical Program Manager. Turner Tr. 51:22-24.

131.   For the IESS/C3 Proposal, Kenneth Turner prepared system architecture diagrams. Turner Tr. 31:7-13. Turner had input into several sections of the Technical Proposal volume, including the sections covering the Architectural Overview (Section 1), the CCTV system (Section 2.1.1), the intrusion detection system (Section 2.1.3), and the access control system (Section 2.1.4). Turner Tr. 211:4-212:5.

132.   Among Turner's tasks was to perform the "top level architecture" for the Proposal, which included the selection of the commercial off-the-shelf (COTS) products to be used. Turner Tr. 23:2-4; Robinson Tr. 34:3-17.

133.   Fred Robinson did the bulk of the writing for the Technical Volume. Lovitt Tr. 36:4-24. In particular, he was responsible for Proposal Volume II, Sections 1 through 1.4 (Architectural Overview), Section 2.2 (Command and Control), Section 2.6 (Interfaces), Section 3 (System Integration) and Section 3.4 (Software Development and Subsystem Integration). Robinson Tr. 51.

134.   Lockheed's technical team analyzed the RFP and created a "requirements list." The technical team then came up with the proposed approach and "solution" for meeting the RFP requirements. The technical team was supposed to document how the requirements were fully addressed in the proposed solution. Bonatucci Tr. 59:20-60:6.

135.   The technical proposal team was responsible for understanding and making judgments about COTS-product selection for the technical aspects of the proposal. Lovitt and the technical proposal team reported to Bonatucci. Gaughan Tr. 50:13-51:9.

136.   The process of preparing the requirements list began with Lockheed's use of an IBM software product (known as Requisite Pro) which identifies the "shall" statements in the RFP, as required by the Contract. See supra ¶ 73. Those statements were then entered into a document known as a "requirements traceability matrix" or "RTM." Lovitt Tr. 46:5-15; Bonatucci Tr. 60:19-61:2.

137.   Every phrase in the RFP that had the word "shall" was considered a requirement. Bonatucci Tr. 60:19-61:2; Robinson Tr. 143:24-144:3.

138.   The requirements analysis required Lockheed to determine the functional requirements in the RFP and organize those requirements into various subsystems or elements. Those subsystems or elements would "then be assigned to a particular solution, in this case a set of COTS products." Krampf Tr. 67:10-68:4.

139.   During the requirements analysis, the technical proposal team "would literally go through the proposal saying, okay, this section here is addressed – this requirement is addressed by this and do [a] top to bottom scrub." Lovitt Tr. 46:5-20.

140.   The design team should have learned through this process whether there were any requirements that could not be allocated to a selected COTS product. Krampf Tr. 68:5-13.

141.   Lockheed understood that additional products would have to be identified or created if the hardware, software, configuration, and additional training components of the solution left gaps in fulfilling the requirements. "If you then still have a gap, you go identify another product or you make another product that fills that gap." Bonatucci Tr. 68:9-16.

142.   Turner determined that the law enforcement and physical security requirements of the RFP could be satisfied using a system architecture that Lockheed called "HI-View," which is the same architecture Lockheed was using for a then-ongoing project for the U.S. National Security Agency, known as Hovawart. Turner Tr. 46:2-47:10.

143.   "HI-View" is Lockheed's product name for a "horizontally integrated view" system architecture that Lockheed's research and development department created for the homeland security market. Bonatucci Tr. 150:19-20; Gaughan Tr. 56.

144.   The Hovawart project involved securing a building with a physical security system consisting of perimeter control and security monitoring. Robinson Tr. 20:5-13.

145.   Hovawart used a COTS law enforcement dispatch software product manufactured by Intergraph and COTS access control hardware and software products manufactured by Lenel. Hovawart required the integration of those two products.   Robinson Tr. 20:10-21; Lovitt Tr. 62:23-63:16.

146.   Lockheed had purportedly "completed interfacing the two products" (Intergraph and Lenel) for the HI-View architecture. Lockheed represented to the MTA in its Proposal that "the two products [were] interfaced successfully." Gaughan Tr. 72:4-23.

147.   The solution proposed by Turner for the MTA project was based on the same concept and product baseline as that used on Hovawart. Robinson Tr. 34:3-17; Lovitt Tr. 30:10-20; Turner Tr. 36:12-16.

148.   In a May 12, 2005, e-mail, Eric Arfin, a Lockheed financial analyst, wrote to Bonatucci, regarding the IESS proposal, "Additionally, you mentioned that LMTSS will be providing a 'HOVAWART' solution." Ex. MTA15.

149.   In a July 26, 2005, outline following a Lockheed team meeting, Gaughan identified as a theme for talking points for Lockheed's oral presentation to the MTA in support of its proposal that the architecture was, "Proven COTS based on Intergraph / Lenel solution that just completed Hovawart acceptance test 2 months early."   Ex. MTA16 at p. 2.

150.   It was Lockheed's intention to "leverage" the product integration experience from Hovawart on the MTA job. Lovitt Tr. 61:25-62:11; Turner Tr. 65; Ex. J9.1, Proposal Vol. I. tbl.2.2.1 at p. 8.

151.   Turner understood the IESS/C3 project called for roughly 4,600 functional requirements. Turner Tr. at 76:6-77:3.

152.   By contrast, the Hovawart project had only 300 requirements. Turner Tr. at 76:25-77:3.

153.   Turner recommended to Bonatucci that Lockheed use for IESS the same architecture that it was using for Hovawart. Turner Tr. 47:6-48:3.

B.   Key Statements and Promises in Lockheed's Proposal

154.   Lockheed submitted its formal written proposal ("Proposal") to the MTA on July 22, 2005. See J9.1, Proposal Vol. I at cover-page.

155.   Lockheed stated in the Proposal that it had thoroughly reviewed the RFP specifications. Ex. J9.2, Proposal Vol. II § 1.2 at p. 6.

156.   Lockheed stated in its Proposal that, "*The Lockheed Martin/ARINC Team takes NO contract exceptions. Our proposed offering is 100% compliant with MTA Capital Construction Company's Request for Proposal.*" Ex. J9.1, Proposal Vol. I. § 7 at p. 19.

i.   Lockheed's Proposed Solution is COTS-Based

157.   Lockheed characterized its solution as *COTS-based*. Ex. J9.1, Proposal Vol. I fig.3.0-1 at p.11; Ex. J9.2, Proposal Vol. II §§ 1 at p. 1, 1.1 at p. 4, 1.2.1 at p. 10, ll. 4-5, 2 at p. 15; 2.2 at p. 33.

158.   The core COTS products were identified in the Proposal and consist of products manufactured by Intergraph and Lenel: (1) the Intergraph Public Safety I/CAD product suite, which is the core component of the command centers, providing the computer-aided dispatch ("CAD") functionality that, among other things, provides the security operator (referred to as the C2 Operator) with the computer screen display (known as the graphical user interface or "GUI"); and (2) the Lenel "On Guard" system, which was described as the "heart" of the IESS system,

and was to manage the security monitoring and related subsystems. Ex. J9.1, Proposal Vol. I § 3 at p. 9; Ex. J9.2, Proposal Vol. II §§ 1 at p. 1, 2.1 at p. 17, 2.6.2 at p. 74.

159.   Lockheed stated that its solution addressed the challenge of designing and providing the IESS/C3 Systems of Systems by integrating the commercial products selected. Ex. J9.2, Proposal Vol. II § 1 at p. 1.

160.   Lockheed represented in its Proposal that, "The Intergraph Public Safety I/CAD product suite, as integrated within HI-View™, supports the requisite C2 functions, CAD, and interfaces to the other solution elements. Linked to Intergraph within HI-View™, the Lenel Systems OnGuard® products provide for the IESS level of control and management for operation of the access control, intrusion detection, less-than-lethal devices, and local video systems." Id.

161.   In its Proposal, Lockheed stated that it would be "reus[ing]" the "system and software product integration experience" that it, along with Intergraph and Lenel, were deploying for a different customer. That other project involved "a HI-View™ based security system; the system includes both IESS and command and control components; the situational awareness displays are integrated with CAD and alarm functions. *This system and software product integration experience will be reused on the IESS/C3 project*." Ex. J9.21, Proposal Vol. I tbl.2.2-1 at p. 8 (emphasis added).

162.   Lockheed claimed that no custom software or hardware development would be needed by virtue of its use of the HI-View architecture. Id. at p. 3.

163.   Lockheed also represented that, "The Intergraph Public Safety I/CAD product suite within HI-View™ supports the full range of RFP-specified interfaces as well as the

requested existing radio system, E911, existing telephone systems, and the alarm events sourced within the IESS subsystem functionality." Ex. J9.2, Proposal Vol. II § 1.2.1 at p. 9.

164.   Lockheed claimed that, "The team has already been working to implement our proposed system architecture and is 95% complete with IESS/C3 product integration." Lockheed further promised that, "This extensive precontract preparation will ensure a fast start-up to the program with minimal risk for the MTA." Ex. J9.1, Proposal Vol. I tbl.2.1-1 at p.6.

165.   Lockheed also represented in the Proposal that, "Lenel and Intergraph work together through their commercially available API to show and deliver processed event, alarm, video and selected audio data such that the data can be presented through Intergraph's GUI to the C2 Operator at the appropriate C2 consoles." Ex. J9.2, Proposal Vol. II § 2.6.2 at p. 74.

166.   "API" stands for "application programming interface." Williamson Tr. 153:4-5. "[A]n API is a specification between two software programs in terms of how they would interact and what data they would pass and the process by which they would interact with one another." Id. at 153:12-16.

167.   Robinson characterized "an interface as the definition of the interaction between the two participants in an interface and the information that's passed between them." Robinson Tr. 92:12-15.

168.   For different software applications to be "integrated" means that, "[t]hey are on the same hunks of glass panel, displays . . . and they have the same look and feel." Gaughan Tr. 77:6-8.

169.   Lockheed stated that it would serve as the "system integrator." Ex. J9.3, Proposal Vol. III § 4.2 at p. 20.

170. Lockheed professed that it was the "[l]argest system integrator to US government last 5 Yrs." Ex. J9.1, Proposal Vol. I § 1 at p. 1.

171. Lockheed also asserted that, "Lockheed Martin is one of the top ten integrators of Lenel equipment, including the successful installation and operation of New York and New Jersey Port Authority sites." Ex. J9.2, Proposal Vol. II § 2.1 at p. 18, para. 4.

172. Lockheed acknowledged in its Proposal that, while its solution relied on a COTS-based approach, "the integrated products don't just work out of the box." Id. at § 3.4, p. 91.

173. To satisfy the requirements of the Contract, the Proposal stated that Lockheed would configure the COTS products selected to meet the business and operational needs of the users and stakeholders. Id.

174. Lockheed further stated that it would customize the system to meet the specific objectives of the RFP by configuration parameters, tables and utilities. Id.

175. "Customizing" in this context means "basically building the system, putting all the data in that's going to make it operate." Lovitt Tr. 103:4-17.

176. Lockheed acknowledged in its Proposal that to meet the RFP requirements would require experience in the configuration of security management products, and a *carefully phased integration*. Ex. J9.2, Proposal Vol. II § 3.4.

177. Lockheed assured MTA that it could satisfy the RFP requirements because of its "leveraged long term working relationships with our product vendors." Ex. J9.2, Proposal Vol. II § 2.1 at p. 18.

      ii. **Lockheed's Proposal Represented that Its Solution Would Be and Already Was Seamlessly Integrated**

178. Lockheed stated in its Proposal: "This COTS product solution *is* fully integrated downward to provide 100% control of all Smart Site and Monitored Location edge sensing

devices and systems, such as Pelco, NICE, EMS, and intrusion-detection and access control peripherals. Similarly, it *is* fully integrated upward to provide a seamless interface of information to our C2 Intergraph suite." Ex. J9.2, Proposal Vol. II § 2.1 at p. 17 (emphasis added).

179.   Lockheed also stated that the CCTV system "seamlessly integrates into Lenel's On-Guard" and *is* fully integrated with our C2/CAD Intergraph system." Id. at § 2.1.1 at p. 19 (emphasis added).

180.   Lockheed represented the CCTV system as "truly a Digital Video Management System" providing seamless integration of "VCA [(video content analysis)] (2.1.2); Intrusion-Detection System (IDS)(2.1.3) and Access-Control System (ACS) (2.1.4)". Id. at § 2.1, p. 17 (emphasis added).

181.   Lockheed represented that the intrusion-detection system "*is* fully integrated into our Lenel ACS and Intergraph C2 System," and that both the IDS-Lenel integration and Lenel-Intergraph integration are "proven." Id. at § 2.1.3, p. 21 (emphasis added).

182.   Lockheed promised that, "Our interface management and control approach ensures complete capture and effective configuration management of legacy . . . interfaces as well as new system interfaces." Id. at § 2.6, p. 72.

183.   In discussing the Concept of Operations and Business Rules processes, Lockheed represented that those activities would include, "Assessment of existing operations and support systems, *including legacy systems*." Id. at § 3.3, p. 88 (emphasis added).

iii.   **Lockheed's Proposed Solution Promises a Single-View GUI**

184.   Lockheed also represented that its integration would enable the C2 Operator to perform his security monitoring and dispatch functions without having to change display views or go into the different subsystems to view or receive data or information. Lovitt Tr. 108:10-19.

Some of these features are described in the following paragraphs, including the single-display user interface and the system's automated and intelligent functionality.

185.   Lockheed's Proposal stated that, "We recognize that the operator interface is the single most critical component of the system for security response to both emergency and nonemergency events." Ex. J9.2, Proposal Vol. II § 2.1.3 at p. 23.

186.   Lockheed represented that its "solution allows operators to perform CAD and security system (C2) functions without changing between display views. The integration between the CAD functions and the C2 functions from both the operator and the application perspective, as depicted . . . allows the system to pass alarm data, acknowledgments, and workstation-sourced command functions (e.g., open door) without the operator changing to a new subsystem." Id. at § 1.3, p. 10.

187.   Turner testified that he believed that the LM design he provided would display alarm data in a single operator interface, meaning a single application that has support functions for both CAD and alarm modules. Turner Tr. 213:2-16.

188.   The primary feature of the Lockheed proposal was that the proposed Solution was to be "integrated from the user's point of view. So the screens that the users dealt with would be integrated." Gaughan Tr. 59:13-21.

iv.   **Lockheed's Proposed Solution Promised Automation and Intelligence**

189.   The System Lockheed stated it would design and provide was to have automated features and provide specified "intelligence." Ex. J9.2, Proposal Vol. II § 2.2 at p. 33.

190.   Lockheed represented that its System would provide "centralized, intelligent response and recovery control for catastrophic events."   Ex. J9.2, Proposal Vol. II § 2.2 at p. 33.

191.   By integrating "multiple technologies" the System was to "provide highly automated action/reaction programming for event stimuli." Id. at § 2.1.3, p. 21.

192. The C2/CAD system was to provide the C2 operator with "automated control . . . to the CCTV system . . . and a capability to automatically initiate PTZ [pan-tilt-zoom] movements in a proactive fashion or, in a reactive fashion, based on system-generated events and alarms." Id. at § 2.1.1, p. 19.

193. To view monitored locations under alarm, the System was supposed to allow the C2 operator to track the threat from camera to camera. "To assist the C2 operator in making rapid decisions, computer analytics with an artificial intelligence engine are utilized." Id. at § 2.2.4, p. 36.

194. Lockheed acknowledged in its Proposal the "problem created by the massive numbers of cameras in security systems." Consequently, Lockheed promised to provide computer analytic systems, also known as VCA [(video content analysis)], that "are designed to reduce the need to watch a video scene to detect specific alarm-related conditions." Watching video is referred to as "proactive." Lockheed stated in its Proposal that its System would allow "a truly robust *reactive* mode." Id. at § 2.2.1, p. 20 (emphasis added).

195. Lockheed described the System's decision support as follows: "Because the quantity and variety of information collected via multiple-system components can be intrinsically difficult for the C2 Operator to mentally collate and understand, our geographically-based representation of resources and information provides an ideal mechanism to couple real time situational awareness with event-response guidance, predicated on agency business rules." Id. at § 2.2.1, p. 34.

196. Lockheed further represented that its Solution employed Intergraph's "decision-support software" to "enable[] each of the MTA agencies to immediately implement locally focused tactics and strategies aimed at reaching predefined objectives." Id.

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197.   Lockheed represented that the System would alert the C2 operator to an incident "and provide[] the operator with a suggested action plan." Id. at § 2.2.3, p. 35.

198.   The alert to the C2 operator was to occur through Intergraph's I/Sensor module. The Proposal stated that the sensor alerts would come from both individual alarms and alarms from "event-pattern generated alarms." As explained by the Proposal, the "System can create warning incidents automatically from data analysis." Id. at § 2.2.3 & tbl.2.2-3, p. 35.

199.   Intergraph's I/Consequence module was supposed to be able to initiate the Operator's response procedure to be followed in accordance with the pre-determined threat level. The response was to be based on Agency-specific business rules which were to be configured into Intergraph's software. "Acting on the business rules which are collaboratively established during the Design Phase, the IESS/C3 System alerts the C2 operator to an incident and provides the operator with a suggested action plan." Id. at § 2.2.3, p. 35.

200.   The CCTV system was also to play an automated role in incident response. "The business rules and ConOps will be translated into logic that causes the video encoders/recorders and storage servers to begin real-time recording of the area under alarm. HI-View™ provides the C3 operator the opportunity to select or review the alarm live and/or recorded video at the C3 workstation." Ex. J9.1, Proposal Vol. I § 3 at p. 10.

v.   **Lockheed Proposed Using Systra as the Commissioning Agent**

201.   Lockheed explicitly acknowledged its understanding of the Commissioning Agent's role in its proposal: "The CA ensures contract compliance with all goals and requirements at the end of the project through an independent agent assigned full time from the beginning," and "[i]ndependent assessment of the work products of each phase, in addition to planning for upcoming phase activities, is the basis of the CA role." Ex. J9.2, Proposal Vol. II § 4.2.5 at p. 101.

202.   Lockheed chose Systra because Systra had "New York experience and expertise".[3] Gaughan Tr. 122:14-22.

203.   Lockheed contacted Systra directly about being the CA for IESS. Martinez Tr. 334:25-335:6.

204.   Lockheed paid Systra for its work on IESS. Martinez Tr. 336:9-14.

205.   Lockheed emphasized that, "SYSTRA [and other subcontractors] have extensive experience providing these types of services to MTA and its operating agencies. All have broad experience and in-depth knowledge of the wide range of MTA standards and processes related to submittal preparation, design reviews, progress meetings, equipment checkout, rack fabrication, construction, cable plant installation, and factory and site testing. Our Business Rules Capture and Concept of Operations development team will be staffed with senior personnel from SYSTRA and ARINC who understand MTA operations." Ex. J9.1, Proposal Vol. I tbl.2.2-1 at p. 7.

206.   Lockheed further proposed that, "SYSTRA will also function as the independent commissioning agent. Their experience in supporting MTA in previous control center build-outs will be invaluable on the IESS/C3 project." Id. at tbl.2.2-3, p. 7.

207.   Lockheed also cited Systra's previous experience as a Commissioning Agent: "The responsibilities of the CA are not new to our Team; in fact Systra Engineering, a member of the Lockheed Martin/ARINC Team, has successfully performed a similar role for other

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[3] See also Ex. 9.1, Proposal Vol. I at pp. 5 ("The Lockheed Martin/ARINC Team's qualifications include: … SYSTRA's deep experience base with transit operations and MTA facilities."); LM Proposal Vol. 1 at p. 6 ("SYSTRA [and other subcontractors] have designed, furnished, and installed numerous systems involving similar work in tunnels, communications rooms, stations, and control centers for the MTA."); LM Proposal Vol. 1 at p. 7 ("SYSTRA [and other subcontractors] have extensive experience providing these types of services to MTA and its operating agencies. All have broad experience and in-depth knowledge of the wide range of MTA standards and processes related to submittal preparation, design reviews, progress meetings, equipment checkout, rack fabrication, construction, cable plant installation, and factory and site testing."), 7 ("SYSTRA will also function as the independent commissioning agent. Their experience in supporting MTA in previous control center build-outs will be invaluable on the IESS/C3 project.").

Transit Agencies." Ex. J9.2, Proposal Vol. II § 4.2.5 at p. 101. Systra's familiarity with the MTA and transit operations made it a particularly appropriate choice to commission the IESS system.

208. Lockheed proposed that, "The CA will work closely with each design and construction team as well as each MTA Agency and affiliate to ensure that all commissioning activities are performed, managed, and reported and that all issues that might affect success in any way are identified, assigned, tracked, and mitigated to closure." Id. at § 4.2.5, p. 102, para. 2.

209. Lockheed further proposed that, "The CA will provide technical oversight, monitoring closely to ensure that each stage of development is thorough, encompassing each and every requirement, so development progresses to the next phases without missing anything or leaving loose ends. The Lockheed Martin/ARINC Team embraces the use of a CA for this project as the benefits are significant. Clearly it is our mutual best interest to complete the project in the minimum time, cost-effectively, and with the greatest possible certainty of success. The CA, as an independent voice with an eye towards the successful completion of the IESS/C3 SoS, will ensure MTA acceptance." Id. at § 4.2.5, p. 103.

210. Lockheed's understanding of the relationship between System acceptance and the CA is entirely clear: "The CA, as an independent voice with an eye towards the successful completion of the IESS/C3 SoS, will ensure MTA acceptance." Id.

211. Linda Martinez testified that, on the IESS/C3 project, the CA did not take direction from anyone at Lockheed or at the MTA. Martinez Tr. 385:20-386:3; 386:16-18.

C. **When It Submitted Its Proposal, Lockheed Understood That It Had to Meet 100% of the Contract Requirements**

212. Lockheed stated that its proposal "takes no exceptions to the contract and is 100% compliant with the requirements of the RFP." Ex. J9.1, Proposal Vol. I § 7 at p. 19, para. 1.

213. Bonatucci testified that the statements made in Lockheed's proposal were accurate. Bonatucci Tr. 40:19-21.

214. Bonatucci also testified that, "We definitely believed that 100 percent of the requirements could be addressed through either use of standard software or standard hardware products and the integration thereof or through training and the implementation of common business rules and approaches within a reasonable range of things." Bonatucci Tr. 73:9-15.

215. Gaughan acknowledged at his deposition that Lockheed took no exception to any of the RFP the requirements. Gaughan 58:2-12.

216. Krampf testified that, "Our intent in any discussions that I had was to meet the contractual requirements, and there wasn't any discussions that I took part of that were any different than that about not meeting the contract requirements." Krampf Tr. 66:11-15.

D. **Lockheed's Design Work was Incomplete and Insufficient to Ensure that Its Solution Was Viable**

217. Turner's architecture work for the IESS/C3 was limited to "Top Level Physical Architecture." Turner Tr. 23:10-23, 25:25-26:7.

218. "Top Level Architecture is not a completed design." "Follow-on work", which should occur during the proposal phase, is needed to refine the design and gather information to arrive at the final system architecture. Turner Tr. 33:2-14.

219. During the "follow-on" work, Lockheed knew that integration considerations might arise that would need to be addressed. Turner Tr. 36-37.

220.   Turner did not perform any "follow-on" architecture work during the proposal phase and he does not know whether anyone else did this work. Turner Tr. at 33:15-18.

221.   During the proposal phase, Turner was asked by George Dick, Lockheed's Pricing and Financial Services Manager, whether "glue/adaptation" code would be necessary to integrate Lockheed's solution into existing MTA systems, as required by the RFP. Ex. MTA17 at p. 1.

222.   Turner responded that Lockheed's "current strategy… [was] all COTS, all the time" and that, "these [COTS] components provide interfaces that already exist to interface to each other and to external systems." Turner also stated that, "The system configuration effort to establish the system operational capabilities is the major effort of the SW." Id.

223.   Mr. Dick asked Turner where Lockheed will be if the "open API does not work?" Ex. MTA18 at p. 1. Turner never responded to this question. Turner Tr. 50:5-8.

224.   Lockheed continued to have internal discussions about the need for "glue code" but Turner was not made aware of any of those discussions. Ex. MTA19 at p. 1; Turner Tr. 54:12-55:11.

225.   Glue code is "a code that facilitates integration of components." Turner Tr. 38:12-14.

226.   Robinson testified that, "we had an expectation that we would not have to develop any software to establish interfaces as part of the project," including with regard to interfacing MTA's legacy systems with the IESS software. Robinson Tr. 96:12-19.

227.   If the interfaces in the legacy systems were not adequate to achieve the integration with Lockheed's proposed solution, Robinson did not know how the integration would be accomplished, since it was not his area of expertise. Robinson Tr. 102:5-103:7.

228.   Though he was responsible for the "Architectural Overview" section of the Proposal, Robinson had no first-hand knowledge of the level of integration between Lenel and Intergraph that had been achieved at the time of the Proposal. He had been told that the two products had some integration capabilities already. Robinson Tr. 47:24-48:9.

229.   The proposal included a statement that the Lenel data would be displayed in the Intergraph graphical user interface. Lovitt Tr. 65:2-14. But Lovitt could not answer how he knew that Lenel and Intergraph would work together as represented. He said Turner was the correct person to answer that question. Lovitt Tr. 65:16-22.

230.   No one at Lockheed independently verified that the Lenel products could be integrated with the MTA legacy systems. Lovitt Tr. 130:25-131:7.

231.   Lockheed relied on information supplied by Intergraph describing the Lenel interface and its abilities. Robinson Tr. 73:19-74:9.

232.   Turner admitted that, to satisfy the MTA RFP requirements with the products and integration used for the Hovawart project, configuration work was required, meaning that Lockheed would need "to set up the interfaces, to operate and provide the information that is identified in the RFP that the system is responsible for." Turner Tr. 97:8-13.

233.   Turner also stated that Lockheed "is not in the job of building our manufacturers' interfaces." Turner Tr. 97:24-98:2.

234.   Asked whether to set up the necessary interfaces, the manufacturers would have to write "middleware to make their products work in conjunction with other products that were to be used on the MTA job," Mr. Turner responded "it's up to the manufacturer how they solve their interface issues." Turner Tr. 98:3-11.

235.   Turner stated that, "[a]t the time of the award the manufacturers were aware of the requirements and they expected to meet them." Turner Tr. 98:24-99:8.

236.   There were no discussions within Lockheed during the proposal phase about whether there were integration issues in connection with the selected products working together. Turner Tr. 37:21-38:2.

237.   Lockheed represented in its Proposal that there would be no need to do any software development for the Project. See supra, ¶¶162. Lockheed made this representation because it believed that it would not be necessary to develop software in order satisfy the requirements of the RFP. Lovitt Tr. 119:10-120:2.

238.   Lovitt testified that Lockheed's representation was based on its belief that Lenel and Intergraph had the requisite features to satisfy the requirements of the RFP. Lovitt. Tr. 104:8-16.

239.   Robinson testified that it was his belief, and that of the others involved in preparing the Proposal, that software development would not be needed to establish interfaces for the Project. Robinson Tr. 9612-97:7.

240.   According to Lockheed Program Manager Gaughan, the "100% COTS solution" presented in the Proposal indicated *that commercial vendors would supply the software necessary for the system.* It only referred to the commercial aspect of who would provide the software, not that no software development was required. Gaughan Tr. 55:15-23.

241.   Lockheed personnel never had a discussion about whether or not they would have to develop new software or customize software in order to satisfy the requirements. Doing so would have been a "plan to mitigate failure," which was a role and responsibility not within the

purview of a program manager or an engineering team. LM's plan was "all about how do you drive to success." Bonatucci Tr. 79:21-80:5.

242.   Krampf testified that he shared this perspective, in that, "It's speculation in terms of what would have happened if. That's not the position we were in, and I don't know, you know, what alternatives we would have taken if that didn't happen." Krampf Tr. 84:19-85:4.

E.   Lockheed's Solution was Dependent on Intergraph Developing and Improving Their Products to Meet Contract Requirements

243.   Gaughan testified that Lockheed was aware that the COTS products selected did not meet all of the technical requirements of the RFP. Gaughan Tr. 58:23-25.

244.   Gaughan knew prior to July 2005 that Intergraph needed to make "significant enhancements" to its COTS products to the meet the MTA requirements. Gaughan Tr. 80:6-24, 84:11-17; Ex. MTA20 at p. 1.

245.   On May 24, 2005, Michael Ravens wrote to Mark Bonatucci about a series of teleconferences he had that day. Regarding Intergraph, Ravens wrote that, "Intergraph believes they will be performing some level of software interface development to tie legacy systems together." Ex. MTA21.

246.   On June 8, 2005, following a review of the requirements that Lockheed allocated to Intergraph, Intergraph forwarded to the Lockheed technical proposal team – Messrs. Lovitt Turner and Robinson – a list of 262 requirements that Intergraph said its product suite would not satisfy. Ex. MTA22.

247.   In his response, Robinson noted that that the 262 requirements were out of a total of 1331 (20%) that were allocated to Intergraph. Ex. MTA23 at p. 1.

248. Robinson acknowledged that, "[T]here were behaviors in the requirements that were not in the current state of the products, but were planned as part of their roadmap for availability." Robinson Tr. 78:5-8.

249. A "product roadmap," refers to "capabilities that a vendor will be providing to be generally available by any consumer over a time frame." Robinson Tr. 78:10-14.

250. In order to meet the requirements, Lockheed knew the COTS vendors would have to enhance their products to increase or augment the capabilities of their products over time. Krampf Tr. 84:9-18.

251. Lockheed stated in its Proposal that "[w]ith appropriate MTA authorization, we will coordinate incorporation of such enhancements into the MTA IESS environment while preventing impacts on ongoing operations." Ex. J9.2, Proposal Vol. II § 2 at p. 15, para. 6.

252. Bonatucci testified that, "[O]ur expectation during the proposal was [Intergraph] would be doing this as part and parcel to the standard COTS product development plans and such action would be comprehensively addressed as part of the license costs and any action required on our part could be covered under 'normal' SPM [(subcontract program management)] scope." Ex. MTA24.

253. Lovitt also acknowledged that Lockheed intended to satisfy the requirements of the RFP through the release of Intergraph products that were going to be developed in the future. Lovitt Tr. 156:7-13.

254. Lockheed worked with the software vendors and was "heavily involved with their future product plans to ensure that their plans met the MTA requirements." Gaughan Tr. 61:8-62:7.

255.   Lockheed believed that future versions of Intergraph's software were supposed to include features that were intended to satisfy some additional requirements of the contract. Gaughan Tr. 65:6-11.

256.   Following submission of its written Proposal, on July 29, 2005, MTA issued to Lockheed a series of written questions, which were, in turn, answered by Lockheed in writing. Lovitt Tr. at 126-27; see also Ex. MTA3, Resp. to Questions Rec'd July 29, 2005 at p. 1, Resp. to Questions 65-70 Rec'd July 29, 2005 at p. 1.

257.   MTA's Question 52 asked Lockheed to "explain the type of software development efforts that will be required to implement HI-View on this project." Ex. MTA3, Resp. to Questions Rec'd July 29, 2005 at p. 25.

258.   Lockheed stated in its response that three Intergraph products, including its "I/Alarm Plus" module, "are planned for upgrade, will be available, and will be incorporated to the Lockheed Martin/ARINC team's proposed solution (in accord with the MTA's desire to have the latest generally available COTS IT products at time of deployment) before Factory Acceptance Test." Ex. MTA25 at p. 26.

259.   Lockheed's proposal included assignment of some requirements and functionality Intergraph and Intergraph's software products that required enhancements to several of Intergraph's standard products. Bonatucci Tr. 102:14-104:6.

260.   Intergraph agreed that some of those requirements would be satisfied by functionality to be included in their product plan for future releases. Bonatucci Tr. 102:14-104:6.

261.   Lockheed believed that the Intergraph upgrades would be released in time to complete the project by the Substantial Completion date. Bonatucci Tr. 102:14-104:6.

262.   On August 3, 2005, Intergraph sent MTA a letter of assurance after a meeting

between Lockheed and MTA in which the MTA sought "assurance from Intergraph that they

could meet the schedule for the plan[ned] enhancements to meet the requirements." Gaughan Tr.

89:5-12.

263.   Intergraph included in its letter a schedule for the release of 10 products that were

prospectively planned to be part of the MTA software baseline, including a product called

I/Alarm Plus. The 10 products were scheduled to be released in the third and fourth quarters of

2006. Ex. MTA26 at Attach. 1, p. 2.

IV. LOCKHEED'S PLAN TO SATISFY THE CONTRACT REQUIREMENTS FAILS (2006-2009)

A.   Design Problems Quickly Emerge

i.   Intergraph's New Products and Product Enhancements are Not Complete and Design Carry-Over from Hovawart is Less than Expected

264.   As of the time the Contract was awarded by MTA to Lockheed, on August 31,

2005, Lockheed and Intergraph had not yet entered into an agreement finalizing the requirements

that Intergraph would satisfy.

265.   On February 2, 2006, Lockheed Project Manager Gaughan wrote, in an internal

email, "Blane Schertz (Intergraph VP) called me yesterday. He's concerned that we're not doing

the necessary architecture, design and baselining activities (with the required discipline) on MTA

to get the 'product enhancement requirements' defined in enough time for Intergraph to

implement them in their COTS . . . . " Ex. MTA27 at p. 1.

266.   In responding to a comment by Intergraph manager Pat Broussard that, "[T]he

SW Design is the biggest portion of the effort," and that, "[I]f this is viewed as COTS, then [we]

need to decide how much detail to include," Mark Bonatucci wrote, on February 10, 2006, "In

45

this regard, Pat Broussard is right on. It is COTS and we need to rapidly close between LM & Intergraph on what level of detail we will put in this document then start to manage our customer's expectations." Ex. MTA28 at p. 1.

267.   By June 2006, Lockheed had acknowledged that the Hovawart solution was ineffective for the MTA project. On June 22, 2006, Jim Williamson reported to fellow project team members, "They [Intergraph] are now openly stating that there will only be a 30% reuse from the Hovawart baseline to implement the I/Alarm+ requirements into the certified COTS product and that 70% needs to be redone." Ex. MTA29.

268.   Lovitt was surprised by the June 22, 2006, email from Williamson. Lovitt Tr. 181:21-182:11.

269.   When asked what the email meant as far as Lockheed's ability to satisfy the requirements of the contract, Lovitt responded, "I actually don't know how to answer that, reply to that." Lovitt Tr. 181:21-182:11.

270.   Lovitt admitted that Lockheed's limited ability to reuse the Hovawart architecture meant that Intergraph had to put "a lot of resources in" or there would be a "schedule slip." Lovitt Tr. 182:17-20.

271.   On July 13, 2006, Lockheed prepared a presentation entitled Intergraph Subcontract Program Management Review (PMR). Bonatucci Tr. 136:20-138:16; Ex. MTA30. That presentation included a "Requirements to COTS Software Release Mapping" table, which reported that, of 1334 requirements allocated to Intergraph, only 561 (42%) were part of an existing product release. The Mapping Table stated that 696 requirements were planned for an "End of Year Release"; and another 83 requirements were listed as "To be Determined," with no date given. Ex. MTA30 at p. 6.

272.   Because Lockheed's solution included product versions not yet released at the time, the process of integrating those products could not begin until the anticipated Intergraph product version was, in fact, released. Bonatucci Tr. 148:5-25. As for the 696 requirements slated for future release, Lockheed admitted that there was no way to know whether the future release satisfying those requirements would work with Lenel until they were actually tested. Bonatucci Tr. 147:4-19.

273.   Bonatucci nonetheless testified that the statement in the Proposal that Lockheed had already achieved a nearly fully integrated set of COTS products was accurate because at the time the Proposal was submitted, Lockheed had *already had a* similarly-designed system that was integrated and delivered for the Hovawart project. Bonatucci Tr. 152:3-9.

274.   After the July 13, 2006, Intergraph subcontract review presentation, Lockheed learned that there were *104* requirements that Intergraph would not include in its future product releases. Ex. MTA31 at p. 3 (emphasis added).

275.   On August 8, 2006, Intergraph reiterated to Lockheed that there were 104 requirements that it would not incorporate into its products "within the context of the MTA Project." Intergraph did offer to discuss developing its product to include the 104 requirements after the scheduled product delivery to the MTA. Ex. MTA32.

276.   Lockheed's experience with software providers was that they will not prioritize investing in product features if only one of their customers is demanding those features. On the other hand, if the vendor's development cost is defrayed by the customer, the vendor will place those new product features in the queue for development for future COTS product releases. Bonatucci Tr. at 168-69.

277.   Lockheed's approach to designing and furnishing a system, if a proposed COTS solution did not have fully developed interfaces between components, was articulated by Lockheed Vice President Carlaine Blizzard as follows: "you buy an interfacing product and add an additional COTS to it." At times when there was not a product available to do that, "we were able to get the vendors to do that as part of their base product." Blizzard Tr. 187:5-20.

278.   Bonatucci understood that Lockheed had between five and seven million dollars of technical service labor allocated in its agreement with Intergraph to do, among other things "enhancements that were not agreed to by [the Intergraph] product managers but that you know gave us the ability to buy that functionality and put it in the product." Bonatucci Tr. 167:11-19.

ii.   **Lockheed and Intergraph Admit that their Design Failed**

279.   On August 4, 2006, Turner wrote to Williamson and Forgette, with regard to the video management system: "But as you can see from the emails, I am not convinced that we have a complete design. Relying on Intergraph to perform video management is not good." MTA33 at p. 1.

280.   Later in August 2006, Turner raised concerns about the system design: "[T]here is a huge problem with the design. . . . The overall solution is too confusing to actually work and relies on Intergraph to solve all of the problems. In addition if Intergraph drops anything or is not available the system will cease to function, at all." Ex. MTA34 at p. 2.

281.   On August 23, 2006, Krampf wrote to Gaughan and Williamson to raise a concern overheard at an "All Hands" meeting concerning how Lockheed planned to validate the proposed integration design: "In the case of MTA we are performing COTS integration. We are making choices on commercial products *that we need to glue together*. Where are we pulling this stuff together, sooner rather than later, to validate our COTS selection. . . . I doubt we built a program plan without this capability." Ex. MTA35 at p. 3 (emphasis added).

282.   Also at this time, Lockheed management took steps to remove Mark Bonatucci as the program manager. On August 15, 2006, Blizzard wrote to Gaughan that, on a phone call that Bonatucci was on with Project people, Judy Marks heard him "losing it." Ex. MTA36.

283.   Blizzard wrote to Marks that she decided to pull Bonatucci out of the position of Program Director, and was replacing him with Gaughan, and that she would develop a "cover story" for the MTA. Ex. MTA37.

284.   Bonatucci was removed from the project due to, as Gaughan testified, "certainly some amount of inappropriate volatility" in his interactions with executive management, among other reasons. Gaughan Tr. 394:4-6.

285.   A transition plan was developed, leading to Gaughan taking the role of Program Director in the fall of 2006. Ex. MTA9; Ex. MTA38.

286.   In an August 28, 2006, e-mail, Intergraph's John Halsema reported to Lockheed engineer Jeff Jacobi on a meeting between Intergraph and Lenel, the "original focus [of which] was to discuss critical technical issues that are causing serious issues at both Hovawart and MTA." Ex. MTA39 at p. 1. Among these issues were that the existing interface did not guarantee delivery of all alarms and that Intergraph's I/Alarm could not "acknowledge" alarms in Lenel's system, preventing the simultaneous use of I/Alarm with Lenel's On Guard Client system. Id. At the time of the meeting, Lenel had "already solved many of our issues, but this is not included in the current release. Id. Lenel suggested that they might consider rolling these fixes back into the current release as 'hot fixes' if LM and INGR pushed for this." Id.

287.   Senior Lockheed officials were aware of the problems that Lockheed was encountering with regard to the design, even at this early stage. For example, on September 8,

49

2006, Blizzard wrote to Chris Horne that, "[I]t appears to me that we are in deep trouble. Every time we 'lift the covers' we find more problems." Ex. MTA40 at p. 1.

288. On or about November 30, 2005, Lockheed entered into a subcontract with Intergraph. The subcontract contained, as Attachment A, a Scope of Work that specified the term of Intergraph's work for Lockheed on the IESS/C3 project. Ex. MTA41.

289. Intergraph's work, per the Scope of Work, included software deliverables, that labor would be as directed and authorized by Lockheed, and that "Intergraph shall create a System Specification Document that will outline the capabilities and functionality of the system. This document will be driven as a result of the ConOps and Business Rules sessions and will serve to define at a more detailed level what Intergraph will provide to Lockheed-Martin for the MTA project." Id.

290. Lockheed and Intergraph finally agreed to a System Specification Document ("SSD") on or about September 22, 2006, more than a year after the Contract was awarded to Lockheed and its chosen subcontractors. Breitbeil Tr. 49:13-19; Ex. MTA42.

291. Section 2.1 of the SSD set forth a table that identified the Intergraph products to be used on the IESS/C3 Project. Ex. MTA42 at p. 6 tbl.1. Table 1 includes four vertical columns. Id. The first column is titled: "Existing Product That Meets MTA Requirements" and incudes seventeen such products. The second column is titled "New Versions of Existing Product to Meet MTA Requirements," and incudes two products. Id. The third column is titled "New Product" and includes eight products. Id.; see also Breitbeil Tr. 47:10-488.

292. Of the 27 products referenced in the September 22, 2006, SSD, ten (37%) had not yet been finalized. Id.

293.   Intergraph Project Manager Jack Breitbeil testified that to create those new software products, Intergraph would be developing software code. Breitbeil Tr. at 48:24-25.

294.   Appendix A to the SSD bears the heading "Intergraph Software Requirements," and it consists of the list of requirements allocated to Intergraph by Lockheed. Ex. MTA42, §1.0. at p. 3. Of the 1550 requirements identified in Appendix A, 86 were identified as "custom," rather than "COTS", in the "Requirement Type" category. These same 86 had a "Planned Release" listed as "As Scheduled by LM," rather than being either in the existing products or being in a release anticipated by December 31, 2006. Ex. MTA42.

295.   The 86 custom requirements were to be satisfied by the "T&M [time and materials] services side of the contract between Intergraph and Lockheed Martin." Breitbeil Tr. 52:4-10; Ex. MTA42, § 3 at p. 15.

296.   Intergraph could perform the work associated with the "custom" requirements only at the direction of Lockheed. Breitbeil Tr. at 57:3-7.

297.   Development of "custom" software requirements was within the work that Lockheed could direct Intergraph to perform under the "time and materials" provision of the Lockheed-Intergraph contract. Thomas Tr. 34:1-8; Breitbeil Tr. 52:11-17.

298.   Lockheed never directed Intergraph to develop the "custom" requirements for the Project. Breitbeil Tr. at 57:22-58:4.

299.   The SSD agreement included a section with the heading "Baseline Interface Components." Ex. MTA42 § 1.3 at p. 16. That section provided that Intergraph was to develop the interfaces to the three systems listed thereunder: Zetron (a voice communication system); Broadware (video surveillance, storage and management system); and Lenel (the interface for all alarm systems). Id.; see also Breitbeil Tr. 61:10-18.

300.   In order to create these interfaces, Intergraph was required to engage in software development. Breitbeil Tr. 61:19-22.

301.   In November 2006, Lockheed system engineer Michael King raised additional concerns about the design process and communications with Lockheed's vendors. King wrote that, "Another major concern is our technical leadership, we had struggled to offer a concise vision for the architecture, including important points such as the scope of each vendor[']s products, the communication between these products, an analysis of current design capabilities and system requirements, and use cases for the system as a whole. In the absence of strong technical leadership, the vendors are trying their best to make assumptions and design decisions, often not realizing the system-wide impact these can have. I feel like the focus on requirements-based design and understanding the customer[']s desired use cases are not as strong as they need to be, and will offer significant challenges as we enter initial integration efforts." Ex. MTA43.

302.   Several months later, Turner raised additional concerns about the system design, writing to Williamson, "The interface [from Intergraph] to Lenel is not an easy one, I should know, it's been 4 years since we conceived it. Given the recent events [on the Hovawart project at Ft. Meade], and the subsequent requests by the customer, great care must be taken in setting the customer[']s expectation about what could be done and what is not possible. . . . The problem with Intergraph is that they are not up to the task of managing the alarm system configuration on top of the CAD system operations. Not to mention that the SW architecture is ghastly." Ex. MTA44 at p. 1; Turner Tr. 181:10-22.

303.   In March 2008, well into the testing program, Intergraph's Project Manager, Jack Breitbeil, noted in an internal Intergraph e-mail that, "the only reason the LM is sending

everything through Lenel is because we (INGR) don't have the system/ability to interface, from

a COTS standpoint, to anything else." Ex. MTA45 at p. 1.

304.   Robert O'Brien, a Lockheed systems engineer with responsibilities for hardware

architecture and some integration functionality on the Project, testified that Lockheed "had

problems integrating almost everything with Intergraph going from the subsystem upward. And

then even within the subsystems themselves, Lenel, there were licenses and different application

add-ons that weren't purchased, so we couldn't do some of the things the customer wanted us to

do." O'Brien Tr. 53:8-14; see also id. at 35:10-22; 58:2-16.

iii.   The Commissioning Agent Identifies Problems with Lockheed's Design Documents

305.   The Commissioning Agent, Linda Martinez, testified that the documents that

Lockheed produced – including software design documents and construction design drawings –

were of poor quality and contained "major quality issues" and "significant problems" that were

difficult to address. Martinez Tr. 367:20-368:15.

306.   Significantly, Lockheed's software design documents did not meet the accepted

industry standards, such as those published by IEEE and provided to Lockheed by SYSTRA, for

this type of document. Martinez Tr. 376:18-377:9.

307.   The software design document needed to be "a complete reflection of all of the

functional and operational requirements of the system." The CA team believed that failure to

fully "encapsulate[]" the complete design of the system in the software design document would

lead to a failure of implementation. Martinez Tr. 371:22-372:10.

308.   Around the time of CDR (October 2006), the CA team complained to Lockheed

that Lockheed was not following the proper peer-review process, which resulted in documents of

poor quality being submitted to the MTA. The CA was being cut out of the review process. Ex.

MTA46. This resulted in what the CA "believe[d] to be submission of documentation that lacks the technical content required or the quality indicators that are expected." Id. at p. 1.

309.   In October 2006, the CA team alerted Lockheed that the requirements regarding the system's operational modes were not addressed in the Software Design Document. Ex. MTA47. The CA team noted that, "The software design to meet each operational mode as required (i.e. degraded, normal, emergency, training) is not presented in this document. . . . This high level document is not acceptable." Id. at comment 5.

310.   Ms. Martinez testified that Lockheed never changed the document to sufficiently explain how the operational mode requirements would be met. Martinez Tr. 373:17-24.

311.   On December 7, 2006, the Commissioning Agent, Linda Martinez, sent a commissioning report to MTA, informing MTA that there were "critical issues" relating to Lockheed's design efforts. Ex. MTA48, Dec. 7, 2006 letter from Linda Martinez to Joseph Christen. These critical issues included Lockheed's failure to trace all requirements to the method that would be used to fulfill them and to develop test plans and procedures to address all functional system requirements; and a concern that the bill of materials was "driving" the design, test and training documents and programs. Ex. MTA48 at Commissioning Finding Report, p. 7.

312.   In response to the Commissioning Agent's letter, Lockheed created an internal PowerPoint presentation responding to each critical issue. None of Lockheed's responses in any way addressed or corrected the Commissioning Agent's concerns. Ex. MTA49.

313.   Lockheed wrote, simply, "no action required" in response to the CA's recommendation that Lockheed "map" functional requirements to ensure that "Test Plans and Procedures TP/P . . . cover all functional system requirements." Id. As to the CA's recommendation that Lockheed "[u]tilize a top-down requirements analysis and design" because

Lockheed's "[b]ottom-up design approach" posed a "high risk to schedule and budget," Lockheed's "[a]ction/[f]orward [p]lan" was to "derive a response to the CA recommendation indicating that the design has stabilized." Id.

314.   The CA issued its first formal commissioning report in December 2006 "to address . . . major discrepancies and deficiencies of the design phase work at this point . . . that Lockheed was failing to be responsive to." Given the stage of the design process, the CA "wanted . . . to be on record with both Lockheed and the MTA as to the state of the design at this point." Martinez Tr. 389:11-22.

315.   The CA team was very worried that there were requirements that were not being addressed by Lockheed's design documents, despite repeated attempts to bring these issues to Lockheed's attention. Lockheed never addressed the CA's concerns to her satisfaction. Martinez Tr. 391-394.

316.   Martinez testified that, "My global sense is that the requirements work, the initial work done on the project by the Lockheed team to determine what they needed to meet all of the requirements was not done sufficiently and meeting . . . the obligations all the way from that point, . . . things were not done as properly." Martinez Tr. 296:4-12.

iv.   Additional Design Flaws Come to Light

317.   On January 24, 2007, Lockheed systems engineer Michael King wrote to several Lockheed engineers and reported that, "BroadWare does not have interface with Pelco or NICE DVR technologies, and [is] not currently working toward an interface with either company." MTA50.

318.   King went on to say that Lockheed, while discussing the issue with BroadWare, had neither asked for a quote to do the needed work nor requested that BroadWare begin such work, so BroadWare had not started work on the needed interfaces. Ex. MTA50.

B.   **Testing Reveals Lockheed's Inability to Verify a Large Number of Requirements**

319.   The CA was directly involved in the testing program. It was essential for the CA to witness system testing, as testing was the primary method by which the CA would be able to verify that the System met the contractual specifications. Ex. MTA48, Commissioning Plan § 4

320.   The CA advised MTACC that LM was not ready for FAT because, "The documentation for the preparation for FAT, tracing and establishing how the functional requirements of the contract would be tested was missing. . . . [U]ltimately the commissioning agent team felt that FAT should not be started because they weren't ready." Martinez Tr. 162:17-163:4.

321.   Instead of heeding the advice of its chosen Commissioning Agent, Lockheed proceeded with its test program without addressing the underlying design problems.

322.   On April 2, 2007, Ms. Martinez wrote to Lockheed expressing strong concern about the test program: "With FAT, SIST, and SOS Test Plans submitted, it is unclear how Lockheed plans to fully verify all RQMTs (7% of total RQMTs are allocated to TP/P [test plans/procedures]) and of particular interest the set of functional RQMTs (1265 of 3854 functional RQMTs are allocated to TP/P or approx. 33%)." Ex. MTA51, Attach. at p. 1.

323.   The CA determined that "Lockheed is not prepared for FAT and FAT TRR [test readiness review] should not be scheduled until all RQMT verification can be accounted for. Given such limited testing in preparation for commissioning, the risk of failure appears to be unacceptably high." Id.

324.   After the CA's April 2, 2007, letter, there was a series of meetings to review the requirements allocation, but Lockheed decided to move forward with FAT testing

anyway. Huggins 141:7-18. Mr. Gaughan, Lockheed's project manager, did not attend these meetings. Gaughan Tr. 124:25-125:5.

325.   Lockheed did not have a rationale for excluding approximately 2,600 functional requirements from its test plans, and set out to devise one only after the issue was identified by the CA. Senior Lockheed systems engineer Robert O'Brien wrote, "[E]ach of the remaining ~2600 should reflect how they will be validated. As you pointed out to me after the meeting, only a few hundred were done." Ex. MTA52 at p. 1.

326.   FAT testing began on or about July 26, 2007. Hughes Decl. ¶29 n.3.

327.   Within a few weeks it became clear that testing was not going well, and that a large number of tests were failing. Even Lockheed's own Quality Assurance engineer, Veli Ivanic, recommended a halt to the testing to Ms. Huggins: "I just had a meeting with Avery [Huggins]. This week dry runs didn't bring good results. My personal opinion is we need more time to prepare FAT runs for the official testing of Wave 2 I/CAD; for example yesterday we tested 7 procedures and the results were as follows: 2 Passed; 2 Passed with suffix; 1 Differed [sic], and 2 Failed. Avery is still perusing [sic] her original schedule, and she is going to start official testing on Monday, August 13. . . ." Ex. MTA53.

328.   The testing was not halted.

329.   At this time, Lockheed programmer David Scott Jones wrote a lengthy note to Turner in a document titled, "Final Thoughts on MTA." In it, Jones, who was "closely involved with the development of the Hovawart and MTA I/Security software" expressed his understanding that "What was desired" was "a seamlessly integrated, highly survivable, C2/C3 system of high performance which is able to assist users at all levels of responsibility in carrying out their jobs in day to day operations and in the handling of major incidents in a potentially

highly degraded environment," and that the system was to "be highly scalable, integrate legacy systems and new systems." Ex. MTA54, Attach. at p. 1. In Jones's opinion, "the vendor failed to provide such a system." Id.

330.   Jones summarized what Lockheed and its subcontractors had provided to MTA up to that point, in August 2007, as "a patchwork of modules based on the Intergraph I/CAD suite, the Lenel access control system, the Broadware and Object Video systems, and other miscellaneous components. These components are neither seamlessly integrated (even single sign on to the components is not provided) nor highly survivable in many scenarios that might be envisaged; any real assistance provided to the operator is questionable." Id.

331.   Jones continued his review of the IESS project up to the end of August 2007, writing that, "System performance has not been demonstrated in any realistic way, and the tools required to do so do not exist and are not planned. It is clear that the system is incapable of meeting performance requirements as written. . . . The publish/Subscribe requirements have been ignored and data security has not been addressed in any level of the system so far as I am aware." Id.

332.   Two months into the test program, the failures were mounting. Systra again wrote to Lockheed recommending a halt to the testing program, and a reassessment of the testing plan. In the cover email to her letter on September 27, 2007, Ms. Martinez wrote that, "The current plan and schedule have no basis in which to have any expectation other than failure as it proposes a severe cut in timeframes for testing, it envisions tripling the progress per day, and it does so in light of the extremely high failure density demonstrated to date throughout the early FAT waves." Ex. MTA55 at p. 1.

333.   Mr. Gaughan admitted that the Commissioning Agent's concerns were valid, particularly with regard to test failures. Gaughan Tr. 127:25-128:6.

334.   Intergraph personnel were also concerned with the state of the testing program at this time. John Halsema wrote, on January 4, 2008, "I believe that while testing is progressing I saw several critical issues today. My principle concern is that this program is dangerously similar to the LM Ingr Hovawart test program. They are testing individual details, but not stressing the system in any realistic manor [sic]. I/sight, for example, appears to be very slow in changing displays and will not be acceptable to operators, although it may pass individual specs much like the Hovawart alarm testing issues." Ex. MTA56.

335.   Mr. Halsema also noted that, "Although the current LM team seems to be arguing the requirements, I am quite sure that their current argument is not consistent with what they told the customer originally." Id.

336.   On February 7, 2008, Gaughan learned that the CA was going to recommend a "'pause' in FAT, to allow LM to fix all of the Variances and then get back to running FAT some time in the future." Ex. MTA57 at p. 2.

337.   Gaughan communicated the CA's expected recommendation to Blizzard, Krampf, and Horne, also writing that, "It's clear that MTA-CC at their core believes that LM should pass ALL requirements and fix ALL Variances. Their advisers are re-enforcing to them that LM should be more rigorous, do more testing, do more / more / more." Id.

338.   On February 10, 2008, Ms. Martinez once again wrote to Lockheed to express her "grave concerns" about the state of the test program. In the February 11, 2008, cover e-mail to her letter to Lockheed, Ms. Martinez wrote that, "The Commissioning Agent has *grave concerns* about the ability to successfully achieve Stage I Beneficial Use in August 2008 given the

ongoing failure of FAT. The recommendation at this time is to discontinue FAT until a stable

baseline of the design can be established to the satisfaction of all parties. *The continued*

execution of FAT to uncover defects of design is not the purpose, the purpose is to verify that the

system meets the requirements." Ex. MTA58 at p. 1 (emphasis added).

339.   Despite the Commissioning Agent's recommendation that FAT be temporarily

discontinued, there was not even an internal discussion at Lockheed about whether to discontinue

FAT until the problems with the test program could be fixed. Huggins Tr. 299:12-16.

340.   Lockheed's management and test director decided that no action was necessary

and no response was required to the Commissioning Agent's letter. Lockheed senior manager

Barbara McKenna wrote, following an internal Lockheed meeting, that "No further action [is]

required from this group. In general, letters from the CA to MTA do not require formal

response." McKenna either ignored or did not know that the CA's February 10, 2008, letter was

addressed both to MTACC's Pezik and Lockheed's Paul Shimp, Director of Quality Systems.

Ex. MTA59.

341.   McKenna further wrote that, "This letter is an FYI and reflects a fundamental

disagreement between the CA and LM on how the program should proceed with respect to

FAT." Id.

342.   After its "wave" approach to testing resulted in numerous failures, Lockheed

introduced a process called "FAT-E", by which it would do some FAT level testing at the

MTAPD facility in Long Island City, rather than in the Mitchell Field test facility. The CA team

did not think that FAT-E testing was appropriate because "FAT-E was an attempt to bypass

factory testing and allow the system, which had been majorly unverified in the commissioning

agent team's view, to be shipped and installed and then the testing which was being referred to as

FAT-E, would allow at high risk, the beginning of the next phase of testing." Martinez Tr. 479:9-22.

C.   **Lockheed Develops a Plan to Exit the Project Without Satisfying the Contract Requirements**

343.   By early 2008, Lockheed's program management and executives were looking for ways to reduce costs and staff on the project. On February 7, 2008, hearing that the Commissioning Agent was about to recommend a pause in the testing program, Lockheed Vice President of Engineering, Technology and Operations Chris Horne wrote, "If [M]ysore [Nagaraja] or his replacement truly believe and 'get' what it means to have bought a cots solution as we discussed earlier then it would appear that he has been unsuccessful in[]conveying that to his team. *If we want to truly deStaff and contain cost* he needs to get his org bought in with whatever help we can provide otherwise our destaff Plan is an academic exercise with bill in the daily crosshairs." Ex. MTA60 at p. 1 (emphasis added).

344.   In responding, Gaughan wrote, "Given that we are delivering a COTS solution, we won't pass all of the requirements fully (to MTA-CC's, CA's and Agencies' satisfaction) and we will have open Variances when this system goes operational -- We're heading for a tough ride ahead no matter to what level we staff to. If we staff to 100 people, Bill (and I) will be in the daily crosshairs. If we staff to 40 people, Bill (and I) will be in the daily crosshairs. In both cases, unless we throw out the COTS products and write a couple of million lines of custom software from scratch, we will deliver essentially the same system in the end. In the first case, we burn $2M per month (much more if we don't stay with COTS). In the second case, we burn $800K per month. I'm not convinced we get done any earlier in the first case then the second case. Eventually, the will go live with the COTS system. I'd rather be burning $800K per

month vs. $2M per month as we wide [sic] through this tough ride. Need to get the design signed off, settle the claims / disputes / AWOs, and stay the course on the FAT program through March – and then hunker down at a lower staffing level to ride it out." Ex. MTA60 at p. 1.

345. In a February 8, 2008, e-mail, Blizzard asked Gaughan, "Is there anyone at MTA, software savvy enough to understand the argument about the difference between satisfying requirements with custom software vs cots? With cots we should be demonstrating how the product has been configured to address their requirements. 60% of rqt is addressed out of the box, 10% with integration of other products, 10% addressed with configuration, 5-10% by asking vendors to update their products (as little as possible so you don't take the cots out of the mainstream of its market) and the last 10-15% is addressed with procedures, training, workarounds, *and the understanding that you just have to let some things go*." Ex. MTA61 at p. 2 (emphasis added).

346. Krampf outlined, in his reply to Blizzard's email, following a meeting with "Pezik, Shields, Fetters (CC test), Martinez, and the Dnutch folks," that MTACC's expectations were "PASS 100% requirements and close all variances. Not only is this in the contract but they fully expect this to happen. The COTS products selected are LM's design and they expect the COTS products, our integration/configuration, processes and documentation to 100% satisfy the requirements." He also reported that the MTA Engineer, Kenneth Shields, expressed to Krampf that, "he has ALWAYS expected 100% requirements pass." Krampf summarized Lockheed's position by noting that, "The punchlist never gets closed because there is always something that won't get fixed." Id.

347. Lockheed Vice President, Carlaine Blizzard, wrote to Joan Adams, her direct superior, on February 14, 2008, saying, "I also had another session with Chris [Horne], Bill

[Krampf] and Jim [Gaughan] on how badly we are managing customer expectations. We are failing test at 30% rate because customer doesn't understand COTS integration and the FFP [(firm fixed price)] COTS baseline of this program – they are construction people. *They truly think we are going to fix everything they write a problem report on – and we aren't telling them anything different*. I asked the guys to go into a 1pm today and explain to customer what cots integration means – that they have written 300 variances which have resulted in 35 changes that we are going to ask the cots vendors to implement in the software – the rest of their reported issues are going to get addressed by workarounds, procedures, training – but not software." Ex. MTA62 at p. 1 (emphasis added).

348.   Blizzard repeated this complaint about the MTA in a March 26, 2008, e-mail to Mike McKeon of Mercury LLC, a public relations firm hired by Lockheed: "Seems like they are still more interested in having a system that meets 100% of a set of paper requirements instead of focusing on its general functional capabilities and getting those capabilities into the field and making the trains a safer place. This approach will push the system until 2009 or maybe even 2010." Ex. MTA63.

349.   Blizzard testified that she never reviewed the MTA's Request for Proposal – "[b]ecause it was a past event" – or Lockheed's Proposal – because, "That all happened prior to my tenure." She also testified that she did not have an understanding as to what documents comprised the contract between Lockheed and the MTA on the IESS/C3 project. Blizzard Tr. 145:22-147:15.

350.   During this period, February-March 2008, Lockheed created the concept of "disputing" test results. There was no mechanism for a "dispute" in Lockheed's Test and Evaluation Master Plan ("TEMP"), nor was a "dispute" status approved by MTA. Ex. MTA12.

351.   Lockheed Vice President Carlaine Blizzard directed her staff to revisit past test results. Asked about this issue, Blizzard testified, "The team – when someone signs off on a test as having happened, it apparently was being construed that we agreed with the results that were recorded by everyone there, when it was simply that the test had occurred. Once we realized that that was being misconstrued as agreement, I asked the people to go back and look at the 15 variances that were generated because of something failed. . . . Were they failed and we agree? Were they failed and we disagree with the severity? Were they failed because somebody misunderstood? And so yes, we did revisit all of those, as we said earlier, to characterize them as to whether Lockheed concurred with the way it was recorded, based on customer input, and signed by Lockheed as having witnessed the customer input, or the commissioning agent or whoever was there." Blizzard Tr. 239-240.

352.   Blizzard testified that she had "heard vaguely about a commissioning agent, but I didn't know a commissioning agent's real duties." Blizzard Tr. 153:11-13. She also testified that she did not know what the CA's "responsibilities were in connection with the testing." Blizzard Tr. 161:14-17.

353.   Lockheed's plan to "dispute" requirements was first raised with the MTA at a meeting on February 14, 2008, following the CA's recommendation that Lockheed pause and reevaluate the testing program. Ex. MTA64.

354.   In an email following that meeting, MTA's Program Manager, Ronald Pezik, commented that, "LM seems to be taking both a very 'oh by the way' and a condescending approach to FAT saying that LM will not be meeting all the requirements in the contract but that is ok because the MTA doesn't need them all and we (LM) will tell you what we think you really need. In other words, I said to Jim you want us to eliminate requirements in the contract because

LM can't or won't meet them because they are too hard and you want to write new ones that LM can meet." Ex. MTA65.

355.   Pezik continued to recount his meeting with Gaughan: "In defending the high failure rates, Jim now says that LM does not necessarily agree with the failure results and is ignoring the fact that each of these tests were witnessed by MTACC, the CA, LM and the agencies and that all parties agreed to the outcome immediately after witnessing the tests. Jim, who was not present at the tests, is going to review all the failed tests because, in his opinion, he is now claiming that it may be a contract/requirement interpretation issue and that he will decide as to whether the tests actually failed or not. He also stated that LM never had any intentions of meeting all the requirements in the contract and the MTA knew that because LM told us that at executive meetings. Furthermore, the MTA wanted a COTS solution, so we can't expect to get everything we wanted." Id.

356.   Pezik concludes his review of this meeting by writing, "I told him that the MTA always expected the requirements to be met and we would only consider inconsequential requirement failures after all of the requirements were tested. Furthermore, the contract says COTS based but not COTS exclusively. In other words, if the COTS product doesn't meet all the contract requirements, LM would need to write code to make it happen. The contract outlines requirements for writing code because it was anticipated. The problem with LM is that, contrary to what they have been saying, is that they can't get their vendor to make more changes and they don't want to write code to meet the requirements because it will be costly and impact their schedule. This in combination with [Lockheed manager] Dick Hughes' pushing the other day leads me to believe that they might be developing an exit strategy because they are recognizing that they are spending too much money and not getting anywhere." Id.

357.   On February 18, 2008, Pezik referred to disputed requirements in an e-mail to Gaughan: "I looked at the handout you gave Terry [Fetters] and it does not identify the 83 requirements that are in dispute by LM. Please provide me with the particulars of the specific test and requirements that LM is contesting ASAP in order to make the Thursday meeting as productive as possible." Ex. MTA66 at p. 2.

358.   On February 20, 2008, Williamson wrote in an internal e-mail that, "[T]here are a set of FAT requirements that we are 'disputing' ([MTA-]CC/CA has failed, we're escalating that it's COTS & this is what it does – move on).   Got a call from Jim [Gaughan]/Bill [Krampf]/Avery [Huggins] who were developing our rationale for dispute." Ex. MTA67 at p. 1.

359.   Lockheed's test director for the project, Avery Huggins, testified that, "Dispute was not a test status. It was an attribute that was used to denote where there was a disagreement between Lockheed Martin and test participants on the status." Huggins Tr. 64:18-21.

360.   Williamson also testified that he had heard Lockheed personnel use the phrase, "COTS is COTS, you get what you get," in connection with the IESS project. Williamson Tr. 272:3-7.

361.   On February 29, 2008, Krampf noted, in an e-mail to Gaughan, "We have escalated 83 disputed reqts which represents xx% of the failures and will continue to do so with future DR[(dry run)]/RFRs[(runs for record)]." Ex. MTA68 at p. 1.

362.   On or about March 4, 2008, Lockheed began utilizing for the first time a horizontal column in the RTM (column "C") to lodge "disputes" of test results that were previously recorded as having failed. Hughes Decl. ¶29 n.3.

363.   Krampf recognized the difficult position that Lockheed was in with regard to FAT, writing to Gaughan and Blizzard, "I finally found a couple minutes to think this afternoon

and started cranking projected pass rates for the FAT program (does not included FAT-E). Table

below shows a range of 65.6% at the bottom end and 83.0% at the top end. Odds are we will fall

somewhere in between." Ex. MTA69 at p. 1.

364.   In his analysis, Krampf established three "requirement bases" to reach different

denominators for his projected pass rates.

- Lowest Reqt Base – Assumes we move out all SIST [(site installation system testing)] reqts, remove suffixes[4], and customer approves all CWRs [(contract waiver requests)] (we would have to win an escalation on the recent rejections).
- Projected Reqt Base – Assumes we move out all SIST reqts & remove suffixes. Per discussion yesterday, *customer is going to be pissed* but we are updating the RTM and sending contracts letter with updates.
- Current Reqt Base – Total reqts in RTM today for FAT program.

Id. (emphasis added).

365.   Krampf concluded by mentioning Lockheed's recent decision to dispute past test

results. "We are fighting for every reqt in the lab. We are queuing up the next round of disputes.

We will also dispute many of the CWR [contract waiver request] rejections. But I also know the

odds of winning these disputes and escalations is small." Id.

366.   The CA team did not consider a disputed status as a pass – it was always counted

as a fail. Martinez Tr. 429:6-13.

367.   Recognizing that as of this time, Lockheed had not demonstrated the required

integration, Blizzard complained, in a March 3, 2008, e-mail to Krampf and Gaughan, "How do

we show Ronnie [Hakim] something that keeps her mind open – how we address [t]he concerns

we understand by using multiple screens." Ex. MTA70 at p. 1.

368.   Two days later, on March 5, 2008, Blizzard wrote to Judy Marks, president of

Lockheed Transportation and Security Solutions ("TSS") division, that, "I think we finally got to

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[4] Explain suffixes.

bottom of issue on most of disputed items. *Requirement is that alarms, alerts, and notifications appear on same screen.* Security events come thru Intergraph and system and network notifications come thru HP openview and maybe a couple directly from Cisco. *Our guys didn't see an issue because we were providing all info. All fights have been about the words 'on same screen.*" Ex. MTA71 at p. 1 (emphasis added).

369.   A few weeks later, Blizzard, in seeking information about the test program from Gaughan and Krampf, noted that she was, "Just trying to get a feel for how far we need to vary from actual ground truth with our detailed test plan." Ex. MTA72.

370.   During this time Lockheed also planned for and went through with closing its factory testing lab at Mitchell Field, despite the objections of MTA, the Commissioning Agent, and some of its own senior engineers. Lockheed engineer Robert O'Brien wrote in an e-mail that, "Although I somewhat understand the rationale for decommissioning the FAT Lab in early April, I am never-the-less concerned that closing the Lab at this time will adversely impact ongoing efforts to validate contractually stipulated system functionality. There are a number of open issues emanating from FAT, as well as those applying to later test phases, that are not yet resolved." Ex. MTA73 at p. 1.

371.   On April 16, 2008, Blizzard e-mailed Krampf about requirements that still required verification: "Then these issues are still open, aren't likely to be software fixes so we need to figure out how to address – Assume this group includes disputes and the rejected waivers." Ex. MTA74 at p. 5.

372.   In discussing testing data with Blizzard and Gaughan, Williamson noted that, "A PR [(problem report)] says there's work to do to successfully demonstrate the requirement. . . . " Ex. MTA75 at p. 1.

373.   Lockheed held an internal meeting in early April 2008 to discuss the "MTA De-Staffing spreadsheet."   Lockheed Director of Engineering for the IESS/C3 project Phillip Thurston described the purpose of the meeting with a reference to "destaffing" (i.e. Lockheed's plan to remove staff from the IESS project): "Most of you have seen the budget numbers for MTA going forward. We can't afford to be slow at rolling people off the program who we are expecting to roll off." Ex. MTA76.

374.   Pezik raised staffing concerns with Gaughan, writing, on April 15, 2008, that he had been told that Lockheed was reassigning its employees from the FAT program and that the testing lab was being decommissioned, or shut down. Ex. MTA77.

375.   Gaughan confirmed in an email back to Pezik that Lockheed was moving "folks" off the FAT program and that the FAT lab was indeed being "decommissioned." Id.

376.   Gaughan forwarded these communications with Pezik to Blizzard, who in turn forwarded them to her boss, TSS President Judy Marks, with the comment that "Ron has noticed we are readjusting staff." Id.

377.   Marks' comment in response was, "Reality is setting in." Id.

378.   Blizzard left the IESS/C3 project in or around June 2008 for another project within Lockheed. Blizzard Tr. 327:3-328:10.

379.   Marks testified that, "Linda [Gooden] asked that Carlaine be removed and believed it was time for another leader there." Marks Tr. 238:12-14.

380.   On June 10, 2008, Lockheed wrote to MTA and stated that, as of that date, "LMTSS completed testing." Ex. MTA78 at p. 1.

381.   On June 11, 2008, MTA responded, stating, among other things, that Lockheed needed to account for 280 requirements missing in the analysis provided in its letter; that it

needed to present a "variance work off plan" to explain how it intended to fix the requirements that still had not passed in testing; and that FAT could not be considered complete "until all fixes are in place and all required regression [testing] is completed and passed. . . ." Ex. MTA79.

382.   On June 20, 2008, Lockheed wrote to MTA and attached a spreadsheet which purported to be a list of 47 FAT requirements it deemed no longer subject to the testing program. Ex. MTA80.

383.   Lockheed stated that these 47 requirements could be verified by "analysis" rather than testing. Id.

384.   Lockheed further stated that it had edited the RTM to reflect this decision and marked those requirements as having "passed." Id.

385.   On July 18, 2008, MTA wrote Letter 1253 to Lockheed, which identified some of the outstanding issues arising from FAT testing that Lockheed needed to correct. These included fixes and successful regression testing for certain functional categories of requirements ("Publish/Subscribe"; Data Segmentation; and Maintenance Mode). Ex. MTA81.

386.   MTA also expressed in Letter 1253 that, even if Lockheed successfully passed the tests relating to these functional areas and their associated requirements, more than 25% of the FAT requirements were yet to be verified. Id.

387.   In addition, MTA advised Lockheed that, pursuant to the Contract, Lockheed could not unilaterally delete "suffixed" requirements; that it could not unilaterally remove requirements from testing to another form of verification; and that it needed to establish that all requirements that had been given a "PW" (pass with workaround or pass with comments) status "be tracked to PR's for closure on any open action" (i.e. that any requirement that was tested

leading to an agreed status of PW would be followed until any remaining work had been done such that it could be re-statused as PA, or "official pass"). Id.

388.   PR stands for Problem Report, which is a record signifying that there is additional work that must be done in order to successfully demonstrate the requirement. Ex. MTA75.

389.   Lockheed had previously acknowledged that the "PW" status was a temporary status, not sufficient for acceptance, and that work had to be performed in connection with the associated requirements to raise the standards to a full "pass." Ex. MTA82.

390.   On January 8, 2008, MTA again reminded Lockheed of its obligation to perform the work necessary to bring requirements with a PW status to a full pass "PA". Ex. MTA83.

391.   On August 14, 2008, Linda Gooden, head of Lockheed's Information Systems and Global Security ("IS&GS") section, asked [finance manager] Joe Trench for an update on the MTA project. Trench replied, "We have unfavorable financial exposure and we are at an impasse with the customer on the path forward." Ex. MTA84.

392.   On September 10, 2008, MTA responded to Lockheed with a letter attachment which rejected Lockheed's request that all 47 requirements be allowed to be deemed verified by analysis. The spreadsheet provided to Lockheed identified 22 requirements that MTA accepted could be verified by analysis, but 25 were expressly rejected. Ex. MTA85.

393.   There is no record in the RTM or elsewhere that requirements were ever tested or otherwise verified. Hughes Decl. ¶¶45-54.

394.   Prior to this letter, on August 21, 2008, Krampf emailed Gaughan and Thurston. He wrote "If we agree that there is no way we ever plan on coming close to addressing issues like driving to 100% reqts, then the [risk] is high." He went on to say, "When Jim/I did this in

March, my agreement was that I did NOT account for any time beyond July 2009. . . . I had to

cap it somewhere or the cost became infinite (impossible to get to 100% reqts pass)."   Ex.

MTA86 at p. 2.

395.   On August 22, 2008, Jim Gaughan replied stating, "Groundrule is: through July

2009. Beyond that is programmatic closure." Id. at p. 1.

396.   During this time, Intergraph prepared a presentation for an internal review of the

IESS project, which was presented on September 4, 2008.   In that presentation, Intergraph

admitted it was unable to develop its product line to cover the requirements allocated to it; and

that it was not able to integrate other COTS products with its own products. Ex. MTA87.

397.   The Intergraph September 4, 2008, Presentation made the following admissions

about the state of its work on the Project:

> a. "LM is working through roughly 100 functional specifications that were not able
>   to be validated or demonstrated." Id. at p. 6.
>
> b. "Roughly one-half of those specifications involve Intergraph." Id.
>
> c. "Intergraph has not been able to demonstrate that all requirements as outlined in
>   the System Specifications Document are satisfied through Intergraph software."
>   Id. at p. 7.
>
> d. "USABILITY is a major concern. Software has not been fully vetted by a user
>   group or subject matter experts in the field (including evaluating the full system in
>   a mock-up operational environment to work through SW workflow and usability
>   issues)." Id. at p. 8.

398.   Part of the September 4, 2008, presentation included information on "MTA

'Highest Value' Functional Software Issues," identifying those functionality and software issues

most critical, in Intergraph's assessment, to the IESS project.

> a. Under the "Aggregated Alarms and Events" topic, Intergraph explained that, *"The
>   system does not have a solution to aggregate combinations of alarms or events
>   based on time, location, and count. Cannot manually create 'aggregated alarm or
>   event types' System does not have the ability to have an event with more than 1*

x/y....for example, 'multiple suspicious packages.'" Id. at p. 9 (emphasis added) (ellipsis in original).

b. Under the "Voice Control System Dialing" topic, Intergraph explained that, "The system does not provide a solution for dialing phone numbers that are displayed within the system, including GSM phone icons." Id.

c. Under the "Voice Control System Alarms" topic, Intergraph explained that, "The design for alarm management is not consistent. Alarms from Lenel are displayed in the alarm queue. Alarms from the Zetron Voice Control System are being displayed in the Event queue and not the Alarm queue. *Users will have to respond to alarms using two different methods*." Id. (emphasis added).

d. Under the "Common Operating Picture" topic, Intergraph explained that, "The system displays too much raw information. The current COP implementation does not roll information up or present it in a fashion that is usable to managers and other executives." Id.

399.   Despite these critical issues identified by Intergraph, Lockheed sought at this time to reduce Intergraph's personnel on the program. In an October 2, 2008, e-mail, Intergraph's Steve Young wrote to Intergraph Vice President for Project Management Tammi Thomas that, "[I]f LM proceeds with only 1 INGR person, we do not believe that the Software will be implemented correctly." Thomas agreed: "Yeah, that was the main point." Ex. MTA11 at p. 1.

400.   Thomas later recounted, in a May 7, 2009, e-mail to Breitbeil and Intergraph Senior Vice President General Jack Pellicci that, "We essentially work 'as directed' by LM. We have been significantly 'reduced' in terms of effort, since late last year." Ex. MTA88 at p. 1.

401.   In a September 30, 2008, e-mail providing an update on the state of the project to Lockheed executives Linda Gooden and Joe Trench, LMTSS President Judy Marks wrote that, "MTA claims that LM's failure to staff is delaying project. As we have discussed, we have been performing work, but not exceeding our current staffing plan due to the fixed price nature of the contract and the current disputes." Ex. MTA89.

402.   Internal Intergraph emails show that Lockheed was not planning to pay Intergraph to develop software to meet MTA's requirements. On October 13, 2008, Thomas wrote to

Pellicci to provide an update on the MTA project: "LM has status'd Intergraph with the current plan to utilize the existing [version] 8.1.3 software for deployment and sign-off for the current contract obligation. . . . We have reason to believe that LM has exceeded their original budget. . . . LM will attempt to sell the 'requirements' as 'met' with the 8.1.3 software." Ex. MTA90 at p. 2.

403. In a discussion of staffing levels for SPIT and SIST testing on Oct. 22, 2008, the Lockheed Scheduler and Project Planning executive, Jonathan Japka, emailed Lockheed Director of Engineering Phil Thurston saying, "It appears we severely do not have enough people." Ex. MTA91 at p. 1.

404. Lockheed management remained focused on their "bottom line cost," despite mounting test failures. On October 24, 2008, Lockheed Project Management Vice President Joan Adams wrote to Judy Marks about MTA that, "They need to know that the win/win is for them to make us go away quietly, because they don't want to see the extent of what LM is willing to do to recoup our investment. . . . They need to understand that we have the means and the desire to fight this as long as they do and will do it publicly and we will do it near term." Ex. MTA92 at p. 1.

405. In a November 10, 2008, e-mail to Jim Gaughan, Lockheed Director of Contracts Dick Hughes described Lockheed Martin's proposed path of "finish 3/31/09 come hell or high water" as the "get out of dodge" plan. Ex. MTA 93.

406. The "Completion Path" was described as "LM to complete to plan to the extent MTA meets dependencies, regardless, Contract ends 3/31 'as is'". Id.

407. On December 8, 2008, Lockheed's work on the IESS project appeared to be slowing down and the CA, Ms. Martinez, wrote to a Metro-North employee that, "There is no

schedule for upcoming testing, schedule of revisions and updates to the system, FAT completion

tests, regression testing for anything, or any plan to deal with the failures/deferrals/blocked

requirements that are again piling up.   These issues are also major concerns, in addition to

making sure that the design changes to the system pass through the CCB [(change control

board)] (which hasn't convened since the summer). This is something that is required and so far

MTACC is holding the line on." Ex. MTA94 at p. 1.

408.   In the same December 8, 2008, email, Martinez also wrote, "[W]e have to be

sensitive to the point at which [Lockheed] decides that they have done enough and there isn't

enough payment remaining in light of the amount of work that will be needed to correct things."

Ex. MTA94 at p. 1.

409.   On December 9, 2008, Intergraph's Thomas emailed Breitbeil. "Regardless of

what our 'blame list' turns out to be, *Lockheed's only rebuttal will be that Intergraph shares in*

the program delay because the delivered SW [software] was unable to satisfy all of the

requirements that Intergraph agreed to." Ex. MTA95 at p. 1.

D.   At the Time Of Default, MTA Could Reasonably Conclude That Lockheed
Either Would Not or Could Not Successfully Furnish a System In
Accordance With the Contract

410.   On October 10, 2008, Intergraph project manager Jack Breitbeil expressed

concerns about the state of the project to Lockheed Director of Engineering Phillip Thurston,

writing, "My question to you is this . . . does LM have the Intergraph budget of 1.5 million fully

funded? My assumption is 'no'. *I'm assuming LM used the Intergraph budget to cover other*

areas of the program." Ex. MTA96 at p. 1 (emphasis added).

411.   On October 15, 2008, Thurston responded to Breitbeil's concerns by informing him that, "Lockheed Martin has been forced to conserve money wherever possible. *Accordingly, the budget picture is not very bright going forward.*" Id. (emphasis added).

412.   In a December 10, 2008, internal MTA e-mail, John Hyland, of the Long Island Railroad, wrote, "When questioned on the test procedure and the shutting down of software, [o]ne of the comments from L/M was, and I wrote it down because it sounded so authoritative and ridiculous, 'It is what it is. It's a COTS products (sic). Deal with it.'" Ex. MTA97.

413.   In 2009, Lockheed still could not successfully integrate the requisite components of its "system", particularly the integration of Cisco, previously Broadware, produces with Pelco and NICE components. See supra ¶294.

414.   Lockheed Proposal promised that products manufactured by Pelco and NICE would be integrated with Intergraph's I/CAD production suite. Ex. J9.1, Proposal Vol. I § 8, p. 10; Ex. J9.2, Proposal Vol. II § 1.0.

415.   Pelco and NICE products, cameras and digital video recorders, respectively, were supposed to form part of the IESS video surveillance system, once integrated with Lenel and Intergraph. Ex. J9.1, Proposal Vol. I §§ 2.1.1, 3 at p. 10; Ex. J9.2, Proposal Vol. II § 1.0.

416.   Cisco Systems, which had acquired Broadware, provided the video management system for the IESS, which was supposed to integrate with cameras and digital video recording systems manufactured by Pelco and NICE. Id.

417.   Williamson wrote to Thurston that, "Discussion with gary on the cisco/nice situation [regarding integration of their products in the IESS system] not looking any better. . . . Thinking it's time we get cisco in NY with pelco/nice and get there stuff working."   Ex. MTA98 at p. 1.

418. Williamson had previously written, in regard to problems with the Cisco/Pelco integration: "While it's not surprising given new API [(application programming interface)] and relatively new/evolving Pelco product, its disappointing that we're spending this much time debugging interface breakage on the very first product release less than 6 months following the august on-site demonstrations with MTA." MTA98 at p. 2.

419. The Cisco/Pelco problems extended into February 2009. "After a week of joint integration efforts with LM, Cisco, and Pelco participants, it has been determined that the Cisco release interface does not fully support the Pelco DVR/NVR platform. . . . LM request that Cisco take immediate corrective actions and provide a fully functional API release by Monday February 23, 2009. As discussed in our daily meeting, the lack of a fully functional interface will directly impact MTA system test progress and impede the acceptance of the Cisco video solution for the MTA program." Ex. MTA99 at pp. 2-3.

420. The same email states, "[T]his failure condition occurred during system dry-run testing with the MTA customer. It is critical to the success of the program that the problem be resolved before further erosion occurs in the MTA's confidence in the Cisco video solution." Id. at p. 1.

421. A February 12, 2009, Intergraph internal presentation to executive staff states, "*Lockheed continuing to scale back on staff. The Lockheed Deputy Program Manager may roll of [sic] the program by the end of February.*" Ex. MTA100 (emphasis added).

422. The Intergraph presentation also states, "Intergraph Program team still concerned that [version] 08.01.03 may not be the last and final release that is acceptable and usable by the MTA," because it may not satisfy all of MTA's requirements that were allocated to Intergraph. Id.

423. The presentation also includes the statement "*more importantly, Intergraph may be at risk for claims from LM as a result of the quality of the software design*." Id. (emphasis added).

424. The CA team did not believe Lockheed was following an appropriate variance process on this project. Martinez Tr. 478:16-19.

425. Very little work was done by Lockheed to close open software problems in late 2008-early 2009. On February 16, 2009, there were still 70 open variances, 68 of which had not been worked on in over 120 days, and 46 of which had not been worked on for over nine months. Ex. MTA101.

426. There were still 332 open problem reports, 298 of which had not been worked on in over 120 days, and 236 of which had not been worked on for over nine months. Id.

427. According to Lockheed's IESS/C3 Configuration Management lead, Steve Whittaker, "The VAR database is in bad shape. . . . This will be a much bigger problem when we try to get to BU. I am sure the MTA will use the fact that we have not closed the relevant VARs as an issue." Id.

428. On February 27, 2009, Lockheed wrote to MTA to request a Beneficial Use certificate for part of the work related to the MTAPD portion of the project, particularly the building at Long Island City constructed for MTAPD and a new dispatching function for MTAPD. Ex. MTA102.

429. Lockheed management continued their focus on exiting from the program by any means available to them, including legal action. On March 3, 2009, Gaughan wrote to Adams and Lockheed Vice President Barbara Humpton, "I'm positive I am not the right person to brief Linda [Gooden] each week on the 'path forward to close the contract by the end of July'. I

interpret that action as briefing the specific actions/people/dates *for legal action*." Ex. MTA8 at

p. 1 (emphasis added).

430.   On the same day, Gooden wrote to IS&GS President Ken Asbury to report, with

regard to MTA, that, "[T]here is no path to the *July closure* (Jim [Gaughan] needs to flesh out his

punch list with actions)." Ex. MTA103 (emphasis added). At this stage, less than five months

before the end of July, and any supposed "July closure", SIST, "site integrated system tests",

remained under way and the Commissioning Agent had yet to certify any part of the system as

ready for Beneficial Use.

431.   On March 4, 2009, Lockheed IESS program finance manager Peter Berl wrote to

Lockheed IS&GS Controller Richard Bott, "On Thursday, we will meet with Jim [Gaughan] to

begin assessing an accelerated de-staff plan. . . . we will meet with Jim to begin assessing our

post-July 'hunker down' plan in preparation for the possibility that MTA-CC will not agree to

our July-09 exit plan. Per discussion today, this 'hunker down' or 'hibernation' approach will

need to ensure that we remain compliant with minimal contract requirements . . . ; create no

impairment to our existing claim; and include month-to-month claim impact." Ex. MTA104 at

p. 2.

432.   Lockheed's finance team was also preparing to support Lockheed's exit from the

program, regardless of the status of the work. On March 5, 2009, Stacie Musgrave, who was in

the process of assuming Peter Berl's role as Lockheed's finance manager for the IESS/C3

project, wrote to Delano Tucker: "*We have an action out of the executives at IS&GS (Jeff/Linda)*

that we need your help in closing - we owe some details to Richard Bott first thing tomorrow

morning so any help you could provide would be much appreciated. We need to understand the

steps we need to take *to get out of our lease in NYC* and the financial impact of such steps. Right

now there is discussion that we may be giving notification of getting out of the lease as early as March 30th." Ex. MTA105 (emphasis added).

433.   Lockheed management continued their moves towards taking legal action to avoid their responsibilities under the Contract. On March 12, 2009, Humpton wrote to Hughes, "Let's decide how to reflect the legal action and other contract actions in Jim [Gaughan]'s presentation." Ex. MTA106.

434.   Lockheed's reduction in staff was apparent to its subcontractors. In a March, 2009 internal Intergraph presentation, one slide notes, "Lockheed continuing to scale back on staff. The Lockheed Deputy Program Manager (Mr. Mark Gaffney) rolled off the program at the end of February." Ex. MTA107, attachment at p. 12.

435.   On March 17, 2009, MTA sent Lockheed a letter identifying numerous outstanding portions of work that had to be completed or fixed by Lockheed before MTA could accept the MTA Police Department portion of the work for Beneficial Use, including, but not limited to:

- testing the mobile command system;

- completion of software verification, configuration and regression testing of the newest dispatch software provided by Intergraph;

- fixing instability of data conversion from the old to the new records management system (RMS) and perform related work on the new RMS;

- satisfying maintenance mode and data segmentation requirements of the Contract;

- resolving outstanding Lenel issues;

- fixing outstanding voice communication system and telephone system issues;

- fixing outstanding issues concerning the video playback system;

- transfer of employee passwords, accounts and access to the system to enable operation;

- providing updated documentation for the items listed therein; and providing verification for all RTM requirements designated "functional non-testable."

Ex. MTA108.

436.   MTA Letter 1554 also provided that Lockheed had to provide software maintenance support until "Substantial Completion" of the entire Contract (after which the warranty provisions would apply). Id.

437.   MTA Letter 1554 also reminded Lockheed that for MTA to issue a Beneficial Use certificate, the Commissioning Agent must "provide a letter stating that they are in agreement that LM has met the requirements for BU in regards to testing and commissioning." Id.

438.   There were still open Lenel/Intergraph integration issues at MTA Bridges & Tunnels on March 20, 2009.   After exchanging emails with members of Lockheed's and Integraph's teams over several days, detailing issues raised with integration and other functionality, Williamson wrote that, "4 days of B&T SIST DRs [dry runs] cancelled due to these issues." Ex. MTA109 at p. 1.

439.   On March 24, 2009, Joan Adams wrote to Gaughan and Humpton suggesting a project to which their IESS/C3 personnel could be reassigned. Ex. MTA110.

440.   On the same day, Steve Lubniewski wrote to a group of Lockheed managers, including Gaughan, Adams, and Humpton, "I believe for the next review, we need to have the Legal strategy briefed, with a dedicated chart in the pitch. This is what Linda [Gooden] asked for." Ex. MTA111.

441.   On March 27, 2009, Lockheed wrote to SYSTRA Engineering requesting that the Commissioning Agent determine that Lockheed met the requirements for MTAPD Beneficial Use. Ex. MTA112.

442.   On that same day, Linda Gooden wrote to Ken Asbury to discuss "items needed in the action plan to close-out the MTA program." Ex. MTA113.

443.   On the same day, Lockheed notified MTA that it would be taking steps to terminate the lease on its project office at One Penn Plaza. Ex. MTA114.

444.   On April 6, 2009, Lockheed wrote to MTA, stating that it had "completed the Site Integrated System Test (SIST) for MTAPD." Ex. MTA115 at p. 1.

445.   In that letter, Lockheed presented MTAPD test metrics for SIST, wherein it indicated that it was disputing the results of 79 tests that had failed, and other tests that had been designated as PW (pass with workaround or comment), as distinct from PA, or "official pass." Id.

446.   Lockheed also deducted from the denominator of its calculated pass rate requirements that it unilaterally deferred, other requirements that it unilaterally deemed "not applicable," and other requirements it claimed were blocked. Id.

447.   Other requirements that had been allocated to the SIST phase of testing in the RTM were simply unaccounted for in LM Letter 1665, in that they had never been tested and simply disappeared from the requirements metrics put forward by Lockheed. Hughes Decl ¶45-54.

448.   Lockheed stated that, based on its various assumptions, it had achieved a pass rate of 97.7 % for MTAPD in the SIST phase of testing. Ex. MTA115 at p. 1.

449.   Lockheed also included in its letter 1665 its response regarding the outstanding items for Beneficial Use that MTA had identified in MTA Letter 1554. In its response, Lockheed stated it was either "complete," or that it would not comply with MTA's demands. Id.

450. Lockheed stated in Letter 1665 that it would not provide software maintenance between the time of acceptance for Beneficial Use and the Substantial Completion of the Project. Id.

451. Lockheed also stated that it would not "status" the verification of the "functional non-testable" requirements prior to Beneficial Use; it would only do this at Substantial Completion, meaning that the MTA would not know, when responding to a request for Beneficial Use certification, whether a large number of requirements, deemed "non-testable", were proven to be functioning at that time. Id.

452. Lockheed also stated it would not transfer to MTA any passwords, accounts or access to the system until after Beneficial Use. Id.

453. On that same day, April 6, 2009, Systra responded to Lockheed's March 27, 2009 request for a Beneficial Use approval. In that letter, Systra stated that it was not prepared to issues a Beneficial Use report. Before it would provide a Beneficial Use report, Lockheed needed to, among other things, (i) satisfactorily verify all MTAPD requirements or agree on those that could be verified or validated post-Beneficial Use; (ii) address all issues identified by MTA in Letter 1554 to MTA's satisfaction; and (ii) obtain from the board responsible for tracking variances the satisfactory disposition of all such variances. Ex. MTA116.

454. Similarly, Ms. Martinez testified that had Lockheed requested certification that the MTA Bridges and Tunnels portion of the IESS System was ready for Beneficial Use, the Commissioning Agent would not have provided that, because "[t]here were outstanding variances, testing was incomplete for the FAT as well as SIST testing and so, the requirements for Beneficial Use would not have been met." Martinez Tr. 515:7-10.

455.   Systra refused to certify the MTAPD facility for Beneficial Use because "the requirements for that phase for BU, Beneficial Use, had not been met. There were outstanding issues that were itemized in the MTACC letter of 01554 which is Martinez 29, and there were variances that were open that needed to be addressed and closed. And once those contractual items had been satisfied by Lockheed, then the commissioning agent team would be able to provide a report to both Lockheed and MTACC outlining the satisfaction of those requirements for Beneficial Use." Martinez Tr. 514:4-15.

456.   On April 13, 2009, Joan Adams wrote to Jim Gaughan asking to reduce Lockheed staff even more. "I would like to revisit the staffing profile work that you did a few weeks ago to discuss what everyone is doing and what alternatives/if any exist to reduce the number in the near term." Gaughan responded, in part, "MTACC has just the opposite reaction…asking why are we shedding any staff at all." Ex. MTA117 at p. 1.

457.   On the same day, Kenneth Shields sent Gaughan a brief letter concerning staffing: "MTACC has heard that Lockheed Martin (LM) will be reducing their staff and the subcontractor staffing for the IESS/C3 Project. The project is at a critical juncture and LM appears to be eliminating experienced staff that would help in completing the project. Please provide an organization chart for the project and an explanation of how the work will be completed with the reduction in resources." Ex. MTA118.

458.   Adams reacted to Shields's letter expressing concerns about Lockheed's staff reductions by advising, "I would hesitate to give them any details to use in the future. Perhaps we reaffirm our commitment to delivering all our commitments without the details." Ex. MTA119 at p. 1.

459.   On April 24, 2009, Lockheed instituted suit in this Court by filing a complaint seeking a declaration from this Court that it could terminate its contract with the MTA. Ex. J1.

460.   Laura Reidenbach, an employee of Travelers Group, one of the Project sureties, took a note in a June 12, 2009 meeting that reflected on this period. She noted that Lockheed, "[p]ursued lawuit – so could stop lease, redeploy people as work wound down." Ex. MTA120.

461.   On April 30, 2009, Lockheed wrote a letter to MTA admitting that it had failed to pass all of the FAT requirements, but stating that its pass rate was 93%. To derive this figure, Lockheed included in its tally requirements that had failed, but that it was disputing; requirements that were designated PW (pass with workaround or comment); and requirements where Lockheed had sought waivers but were denied. Lockheed also deducted from the denominator requirements with suffixed numbers, requirements it unilaterally deemed to be not subject to test; and requirements it moved to the SIST testing period. Ex. MTA121.

462.   Lockheed's metrics also failed to account for all of the requirements allocated to FAT in the RTM. Hughes Decl. ¶27-43.

463.   On May 1, 2009, Lockheed wrote to MTA requesting that a Beneficial Use certificate be issued pursuant to Article 2.02 of the Contract for the MTA Bridges & Tunnels portion of the Project. Ex. MTA122.

464.   In Letter 1730, Lockheed presented its metrics for the Bridges & Tunnels portion of the Project. In its tally of passed tests, it included 47 failed that it was disputing, and other tests that had been designated as PW (pass with workaround or comment), as distinct from PA, or "official pass." Id.

465. Lockheed also deducted from the denominator requirements that it unilaterally deferred to later rounds of testing, other requirements that it unilaterally deemed "not applicable", and other requirements it stated were blocked. Id.

466. Other requirements that had been allocated to the SIST phase of testing in the RTM were simply unaccounted for in LM Letter 1770. Hughes Decl. ¶45-54.

467. Lockheed never presented a request for Beneficial Use for MTA Bridges and Tunnels to SYSTRA, the Commissioning Agent. Martinez Tr. 514:19-515:10.

468. Had Lockheed done so, the Commissioning Agent would have rejected the request. Martinez Tr. 514:19-515:10.

469. On May 7, 2009, Intergraph's Thomas wrote to Breitbeil, "LM has told us that IF it gets bad . . . , they could be liable for resolving the open '400 sw requirements not met' . . . There is $1.35m in backlog on an LM T&M services order supported by MTA. We essentially work 'as directed' by LM. We have been significantly 'reduced' in terms of effort, since late last year." Ex. MTA88 at p. 1.

470. On May 18, 2009, MTA wrote Letter 1621 to Lockheed in response to Lockheed's Letter 1665 of April 6, 2009. In its letter, MTA stated that Lockheed's April 6th letter failed to resolve any of the outstanding issues for Beneficial Use for MTAPD as outlined in MTA's letter 1554. Ex. MTA123.

471. On May 26, 2009, Lockheed wrote to Intergraph in response to Intergraph's request to begin the warranty period, "To date, the customer has not accepted any of the C3 centers. Furthermore, the MTA has cited software defects in the Intergraph software as the key reason for not providing customer acceptance of any C3 centers to date." Ex. MTA124, Attach. at p. 1.

472.   On May 26, 2009, MTA delivered to Lockheed a "Default Notice – Opportunity to Cure." Ex. J6.

473.   The Default Notice stated that, pursuant to the Article of the Contract (the Default Article), that "Events of Default" had occurred, and set forth a non-exclusive list of failures to perform under the Contract. That list included failures of design, scheduling problems, the poor quality of work, management problems, testing problems and failures, the overall failure to prosecute the work, and the failure to meet performance standards and the requirements of the Contract, among other items. Id.

474.   The Default Notice stated that Lockheed had not taken the measures necessary to satisfy the functional, testable requirements of the Contract; and that it had also failed to demonstrate that it had met the functional non-testable requirements. The Default notice also asserted that Lockheed had not devoted the resources necessary to deliver the system functionality required by the Contract. Id. at p. 6.

475.   The Default Notice further asserted that Lockheed had failed to develop the software and to perform the integration work necessary to create a system that could satisfy the Contract's requirements. This is reflected in the outstanding testing FAT and SIST testing failures; the failure to integrate legacy equipment into the new system; and the failure to demonstrate the Contract's 99.99% "availability" for the System." Id. at p. 7.

476.   In connection with testing, the Default Notice notified Lockheed that it had failed system testing at both the FAT and SIST stages. At FAT, MTA stated that Lockheed never completed FAT and that there were 315 FAT requirements with open variances. MTA asserted that Lockheed had "proven itself to be either unable or it has simply refused to perform the work necessary to satisfy these requirements." MTA cited Lockheed's late start in FAT testing, its

shipment of system hardware racks to field sites prior to completing the FAT tests, in violation

of the Contract, and its decision to close down its FAT lab at Mitchell Field on Long Island with

outstanding FAT tests, as examples of Lockheed's failure to adhere to testing-related

specifications. Id. at p. 5.

477. The Default Notice also cited Lockheed's failures at the SIST phase and noted

that, between the two sites at which Lockheed claimed it had completed SIST testing (MTAPD

and B&T), there were a combined 273 failures. Id. at p. 6.

478. MTA concluded its paragraph on SIST testing by asserting that Lockheed had

been unable to achieve the requisite level of completion to turn over the C3 facilities to the two

agencies for use, and that "Lockheed has thus far proven unable or has otherwise refused to fix

these failures, in violation of the Contract." Id.

479. The Default Notice concluded by demanding that Lockheed submit "a credible

plan" by June 4, 2009, that would cure the multiplicity of defaults. MTA required that the plan

include, among many other things, "a plan to satisfy system requirements with 100% pass rate on

all testing and a plan to demonstrate all functional non-testable requirements." Id. at p. 9-10.

480. Martinez did not disagree with anything in Section 4 of MTA's Notice of Default

to Lockheed Martin, which cited Lockheed's failures with regards to the system. Martinez Tr.

516:15-20.

481. Those Lockheed personnel still attempting to work on the project were stymied in

finding sufficient Lockheed staff members to meet their needs. On May 27, 2009, Himert wrote,

"We don't have QA [(Quality Assurance)] staff to support testing." Ex. MTA125.

482. This had been set in motion as early as March 2009, when Whittaker and

Gaughan exchanged e-mails about how to get the project's "VAC", that is "variance at

completion," to $0. Whittaker wrote, on March 9, 2009, "To get to zero I would have to cut about 2.5LM [personnel units] out of QA [(quality assurance)], meaning that in June you would have Wally [Kaczynski, a Lockheed Quality Assurance staff person] and July there would be no QA." Gaughan replied, "I need you to please look seriously at VAC=$0 . . . take a serious look at cutting back to 1 QA person after LIRR SIST completes at the end of April 2009 if that's what it takes." Ex. MTA126 at p. 1.

483.   More than a month after Lockheed filed its lawsuit to be released from the contract, Lockheed security design engineer Jan Greene e-mailed Timothy Buckley, a Lockheed design engineer to complain about the design. See Gaughan Tr. 551:11-552:2. "I see what you['re] facing. It looks like everyone's bidding for wires that home run to the ACP to compensate for F ups and lack of insight in the design upfront. . . . My only fear is that the software integration may not even be possible with Intergraph in the picture. . . . It would have been nice if we proofed out the software solution three years ago before we installed." Ex. MTA127.

484.   On May 29, 2009, Robert O'Brien, who was no longer with Lockheed, but had been a system engineer involved with integration work and testing, wrote to Ben Sun, who worked on Project oversight for MTA's outside construction consultant, URS. Ex. MTA128; Shields Tr. 103:24-104:2.

485.   In that e-mail, O'Brien wrote, in reference to the MTA's Default Notice, that, "MTACC has only scratched the surface. . . . " Ex. MTA128

486.   O'Brien went on to state that Lockheed never had in place a system architecture document, which led to the "FAT [testing] disaster"; and that "the fatal flaws in [Lockheed's] original proposal to MTACC, its inexplicable poor execution of the contract, and the glaringly

substandard and arrogantly untalented management LMCO assigned poisoned the program beyond redemption." Id.; O'Brien Tr. 167:3-168:7.

487.   In addition to everything else going on at this time, on June 1, 2009, Lenel informed its customers that the version of its product used on the IESS project would no longer be supported by Lenel. As Gary Himert wrote to Williamson, "As an FYI, and to avoid a possible gut punch from MTA, with this release of OnGuard, the deployment version of 5.012.12 is now obsolete and no longer supported by Lenel." Williamson responded, "I'm having trouble remembering a single Level VAR in all of our testing. We are not moving to 6.x for MTA." Ex. MTA129.

488.   On June 1, 2009, MTA responded to Lockheed's Letter 1729 of April 30, 2009 regarding FAT metrics. In this letter, MTA noted that the 116 failed tests that Lockheed was "disputing" had not been witnessed by the Commissioning Agent or MTACC as having passed; that Lockheed had wrongfully included waiver requests among its count of "passed" tests; that Lockheed wrongfully deleted from the requirements so-called "suffixed" requirements that were in the RTM; and that Lockheed wrongfully removed a group of testable requirements based on its unilateral determination that these requirements could be verified in another manner. Ex. MTA130.

489.   On June 3, 2009, MTA responded to Lockheed's Letter 1730 of April 30, 2009 regarding Lockheed's request for Beneficial Use certification for the MTA Bridges & Tunnels portion of the work. In this letter, MTA notified Lockheed that its SIST metrics were incorrect. Specifically, MTA stated that, to complete the work for B&T Beneficial Use and Substantial Completion, Lockheed needed to accomplish the following (among other items): (i) pass the tests that Lockheed agreed had failed; (ii) pass tests that the Commissioning Agent (as well as

MTACC) had witnessed as having failed and were recorded in the RTM as having failed, notwithstanding Lockheed's "dispute"; (iii) pass tests it unilaterally deemed to be "not applicable"; (iv) pass tests it had unilaterally deferred; and (v) pass a group of tests that were awaiting the installation of fax line "tone remote adapter." Ex. MTA131.

490.   In Letter 1637, MTA also reminded Lockheed that it was "ignor[ing] the outstanding test requirements that have not passed FAT" and further, that Lockheed had thus far failed to provide MTA with a plan for satisfying these requirements. MTA also reminded Lockheed that it had failed to verify that it had met the non-testable requirements of the Contract necessary for Beneficial Use to be issued. Id.

491.   On June 4, 2009, Lockheed submitted a letter bearing the subject heading "Default Notice – Opportunity to Cure" (hereafter, "Cure Letter"). Ex. J7.

492.   In its Cure Letter, Lockheed addressed, among other items, the issue of the state of IESS/C3 completion regarding its work at MTAPD and Bridges & Tunnels; its FAT obligations; and its SIST obligations. Id.

493.   With respect to its work at MTAPD and B&T, Lockheed stated in its Cure Letter that "LM had completed the work for the MTAPD Central C3 and B&T IESS/C3 and has requested Beneficial Use certificates for these two areas of the project (i.e., two of the 5 Beneficial Use Certificates defined in the Contract), which the authority has still not issued." Id.

494.   With respect to FAT testing, Lockheed stated in its Cure letter that "Factory Acceptance Testing is complete." Id.

495.   With respect to SIST testing, Lockheed stated in its Cure Letter that "so long as the Authority has completed its work, LM has completed SIST." Lockheed then continued with its response to the MTA's assertions that Lockheed's test metrics were incorrect by re-submitting

to MTA the identical metrics it had presented in its prior letters to the MTA (Lockheed Letters 1665 and 1730). Id. at p. 26; see also Exs. MTA115; MTA122.

496.   The CA did not agree with the FAT requirements pass rate put forth by Lockheed in its cure letter response to MTA's Notice of Default. Martinez Tr. 517:15-23.

497.   The CA disagreed with Lockheed's assertion in its cure response that it had passed 97.7% of the requirements that were available to test at MTAPD, and 97.8% of the requirements available to test at B&T. Martinez Tr. 519:15-520:6.

498.   This happened at the same time that Lockheed was still trying to integrate the Lenel and Intergraph software that was central to Lockheed's Solution. Three days after the notice of Lenel's new release and ending of support for the version being used on the Project, in an internal Lockheed email including Himert and Williamson, Lockheed Engineer Jeff Jacobi wrote, "I think we need to proceed with another discussion with Lenel. . . . I can't really do anything more at this point without some additional Lenel expertise." Ex. MTA132 at p. 1.

499.   On June 8, 2009, Lockheed sent Intergraph the letter that Intergraph had requested, in which Lockheed asserted that it was "providing the specific list of requirements from the System Specification Document *that Intergraph has failed as outlined in the attached.*" There are 310 failed requirements listed. Ex. MTA133 at p. 1.

500.   MTA postponed its final decision regarding default to allow for a final meeting between the parties, which took place on June 10, 2009.

501.   Lockheed's reductions in staff on the project continued up to termination, leading one engineer to remark, on June 11, 2009, "Program can't even get the simple things straight like keeping track of the miniscule staff it has, no wonder we're in shambles!!" Ex. MTA134 at p. 1.

502.   Himert reported similar issues supporting construction work relating to the Metro-North "historical" areas, pleading, in a June 11, 2009, e-mail to his colleagues, "[W]ho do we have that can help. . . . [G]iven the ambitious test schedule we are supporting as well as requirements for Lenel to get some attention next week @ the Enterprise level as well. Anybody have some suggestions for how we get this done?" Ex. MTA135.

503.   Gary Porter, a Deputy Program Manager, responded to Himert's concern, noting that, "[T]he fact that the drawings are wrong is on us, the LM team. We need to figure out how we can perform a complete and thorough review of the Historic Package [for Metro-North]." Ex. MTA136.

504.   Williamson, who had been copied on Porter's e-mail to Himert, replied that, "The whole point of our cure response was 'enough – mo[v]e on – issue the [Notice to Proceed] and deal with it.'" Ex. MTA136.

505.   Williamson subsequently directed that Himert be removed from the "historical" drawing work that he was overseeing. Ex. MTA136.

506.   On June 12, 2009, MTA issued a letter to Lockheed, copied to the sureties, that Lockheed had defaulted on its obligations under the Contract. Ex. J8.

507.   At the time of Lockheed's termination, Systra was not prepared to commission any of the agencies' portions of the IESS system, as "[a]t the time of the default, there were open – the FAT was not completed. There were - SIST was not completed. There were no requirements – not all the requirements for Beneficial Use for any of the portions of the IESS system that could be commissioned." Martinez Tr. 515:11-23.

V.   The State of the IESS/C3 System at the Time of Lockheed's Termination

A.   Data from Lockheed's Test and Variance Records

508.   The RTM shows that there were a total of 17,523 Contract requirements. Of those, Lockheed categorized 4261 as functional and 13,262 as non-functional. As of June 2, 2009, a total of 1555 requirements had been allocated to the FAT phase of testing, with 1114 requirements recorded by Lockheed with a designation of PA ("official pass") or PW (pass with workaround or comment). Hughes Decl. ¶24, 29.

509.   The remaining 441 requirements allocated to FAT were recorded as either FA (failed), DE (deferred), BG (blocked), NS (no status) or were recorded with no test status at all (i.e. left blank). Hughes Decl. ¶29.

510.   Based on a plain reading of the RTM as of June 2, 2009, the final RTM submission by Lockheed before it was termination, only 72% of the requirements allocated to FAT were recorded with either a PA or PW status, and 28% of the FAT requirements, including 172 test failures (11% of the total FAT requirements), were recorded in a completely non-passed state. Hughes Decl. ¶29.

511.   The RTM shows that 250 of the requirements allocated to FAT were recorded as PW, most likely indicating that, "additional work needed to be done by Lockheed in order to achieve the functionality associated with the requirement under test." For 213 of those requirements, there was a record showing that additional work needed to be done to establish that the requirement had been met. Subtracting these 213 from the 1114 (PA + PW) referred to above, leaves a total of 901 clean PA's out of a total of 1555 requirements allocated to FAT – a pass rate of only 58%, leaving 654 or 42% of the Contract's FAT requirements in a non-passed state.   Hughes Decl. ¶32, 35, 36.

512.   The June 2, 2009 RTM shows that Lockheed had allocated 852 requirements to the SIST phase. Hughes Decl. ¶46.

513.   A small percentage of these requirements related to individual agencies and so, would not be tested across all five agencies. For example, some SIST requirements related to MTAPD's dispatching functions, which would not be tested at the other agencies. Hughes Decl. ¶46.

514.   The RTM indicates numerous instances of requirements allocated by Lockheed to SIST which were never tested at *any* agency. For example, there were 188 requirements allocated in the RTM to be tested at each agency, but which appear in the RTM as "not applicable" across all five agencies without explanation in the RTM. Hughes Decl. ¶47.

515.   In SIST testing at MTAPD, 355 of 852 (41.7%) requirements were recorded with a PA or PW, leaving 497 (58.3%) in a non-passed state. Hughes Decl. ¶48.

516.   In SIST testing at MTA Bridges & Tunnels, 292 of 852 (34.3%) requirements were recorded with a PA or PW, leaving 560 (65.7%) in a non-passed state. Hughes Decl. ¶48.

517.   In SIST testing at Long Island Railroad, 273 of 852 (32.0%) requirements were recorded with a PA or PW, leaving 579 (68.0%) in a non-passed state. Hughes Decl. ¶48.

518.   Of the 920 SIST requirements accorded PA or PW, 263 (or 29%) were listed in the PW category. In the records for 233 of them, Lockheed made a record that indicated that additional work needed to be done in order to satisfy the contract requirement under test. Deducting the 237 from the 920 gives us an aggregated "clean" pass rate of 687 out of 2556 for the three agencies, or 27% of the total, with 1869 or 73% remaining in a non-passed state. Hughes Decl. ¶50.

519.   The June 2, 2009 RTM shows that there were a total of 1884 requirements allocated by Lockheed to the "functional" category but deemed to be "not-testable" ("function non-testable" or "FNT"). Hughes Decl. ¶55.

520.   These requirements were to be verified through alternative means, such as analysis or inspection.   Of these 1884 requirements, not a single one appears in the June 2, 2009 RTM with any record of having been satisfied by Lockheed. Hughes Decl. ¶55.

521.   Lockheed achieved a clean PA for 1562 functional requirements out of 5995, including the three agencies tested during SIST, or 26%. Hughes Decl. ¶56.

522.   With the two untested agencies in the calculation, Lockheed obtained clean PA's for 1562 out of 7499 or just 21% of the total functional requirement verifications. Hughes Decl. ¶57.

523.   Pursuant to its contractual obligations, Lockheed established a variance tracking program using a software product known as StarTeam. Hughes Decl. ¶22.

524.   At the time Lockheed's termination, the StarTeam database showed that 80 variances remained with an "open status," with 15 of those assigned a severity level "1" and 37 assigned severity level "2.". Hughes Decl. ¶61.

525.   Additionally, StarTeam shows that there 349 open problem reports. Hughes Decl. ¶61.

526.   The 429 open variances and problem reports do not constitute the universe of variances in the testing program as of the time of default. These are only those that Lockheed entered into the tracking system. Hughes Decl. ¶63.

527.   For example, there were 233 SIST tests recorded as PW with statements indicating that additional work needed to be done to satisfy the requirements under test; in addition, there were 173 SIST requirements reported as failures in the RTM. This could have resulted in 410 or more variances recorded in StarTeam. Yet StarTeam records only 10 variances and 27 problem reports arising out of SIST. Hughes Decl. ¶63.

B.   **Observations of MTA Agency Personnel**

    i.   MTA Police Department ("MTAPD")

528.   At the time of default, the MTAPD C3 Center had only "extremely limited functionality" in its "security theatre" and essentially no functionality at all in its dispatch theatre (the section of the MTA facility containing the police dispatch functions). Viviano Decl. ¶

529.   Lockheed was required to outfit the MTAPD's dispatch theatre with new records management, dispatch and mobile data systems, and had promised to do all three using Intergraph products. Viviano Decl. ¶

530.   Lockheed was also required to fully install a new voice communication system, to be integrated with the dispatch systems and with the MTAPD's existing mobile radio system. Viviano Decl. ¶

531.   As of termination, none of these systems were fully installed or operational, and functional testing related to each of these was incomplete. Viviano Decl. ¶

532.   Lockheed was also required to integrate MTAPD's dispatch functionality with its security system, but integration was either non-existent or non-functional, as demonstrated by the system testing at MTAPD. Viviano Decl. ¶ ; Hughes Decl. ¶48.

533.   At the time of Lockheed's termination, the MTAPD Central C3's security theatre possessed little of its promised functionality: a few of the building's own access control devices and cameras were operating, and some of LIRR's limited functioning camera feeds could be seen. Viviano Decl. ¶

    ii.   MTA Bridges & Tunnels ("B&T")

534.   Lockheed's work on the IESS system for B&T at the time Lockheed sought a Beneficial Use certification in May 2009 was largely incomplete, with hundreds of outstanding

requirements, many of which were critical to the proper functioning of the System. Hansen Decl. ¶ 9.

535. At the time of termination, some six weeks after Lockheed requested that B&T take Beneficial Use of the C3 center, B&T had only limited video management capability, its personnel had no ability to access the system, and the video management system had not been demonstrated to possess contractually-compliant functionality. Hansen Decl. ¶ 10.

536. No systems at the B&T C3 were complete or functional at the time of Lockheed's termination. Hansen Decl. ¶ 10.

iii. Long Island Railroad ("LIRR")

537. As of the time of Lockheed's termination, the LIRR System lacked the promised "seamless integration": Security Operators were not provided a single screen display; "intelligent" features, like alarm aggregation and the ability to detect patterns, or the ability to prioritize alarms, were not provided; there was no automated decision support; there was no automatic video pop-up on the Security Operator's screen when an alarm was triggered; the cameras would not automatically point to the location of an alarm event; recorded video was not displayed automatically upon the triggering of an alarm; and the automatic routing of alarms, alerts and notifications to designated users according to the business rules was never provided. Murphy Decl. ¶5.

538. The physical construction of the C3 Center in Jamaica was mostly complete, and some cameras had been installed, but the software and hardware for the IESS/C3 were not fully operating and the video from the cameras was not fully integrated into the primary software platform, which was to be provided by Lockheed's vendor, Intergraph. Murphy Decl. ¶5.

539. Some video could be transmitted to the C3 Center, but via other, separate software applications not provided by Lockheed, with no alarm components. Murphy Decl. ¶5.

540.   The video recording system was not operational through the C3 center. Murphy Decl. ¶5.

541.   The access control devices installed by Lockheed (from a product system manufactured by Lenel) were not properly integrated into the System. Murphy Decl. ¶5.

542.   The necessary data from Lenel was not visible on the Intergraph GUI. Murphy Decl. ¶5.

543.   Neither the voice communication system (to be supplied by another Lockheed vendor, Zetron) nor the voice recording system, manufactured by NICE, were operating. Murphy Decl. ¶5.

iv.   Metro-North Railroad ("MNR")

544.   As of the time of Lockheed's termination, with respect to physical construction, Lockheed had not installed all of the required cameras, access control and intrusion detection devices; the conduit installation had not yet been completed; and the installation design for a significant portion of the MNR Project (known as the historical areas) had not even been completed and, therefore, construction work had not even begun there. Ryan Decl. ¶8.

545.   Some cameras and other devices were installed in the wrong location and needed to be reinstalled. Ryan Decl. ¶9.

546.   With respect to testing the software and verifying that the Contract's functional system requirements were being met, Lockheed had not begun testing at the MNR sites. SIST testing could not begin until sufficient devices were installed in the field so that the functional requirements associated with each subsystem could be verified. At the time Lockheed's contract was terminated, Lockheed had not progressed the physical construction and installation to a state where SIST testing could be conducted. Ryan Decl. ¶10.

547.   Additionally, as of the date of Lockheed's termination, the previous testing that

had been conducted failed to verify that MNR would receive the security system MTA had contracted for. Ryan Decl. ¶11.

       v.   New York City Transit Authority ("NYCT")

548.   In terms of system hardware at NYCT's C3, at the time of its termination, Lockheed had not configured the System, specifically the Intergraph software, to receive information from all installed access panels or video feeds from any of those system cameras that had been installed. Rahle Decl. ¶9.

549.   With respect to testing the software and verifying that the Contract's functional system requirements were being met, Lockheed had not begun testing at the NYCT sites (referred to as site integration system testing or "SIST").   SIST testing could not begin until the required devices were installed in the field so that the functional requirements associated with each subsystem could be verified. At the time Lockheed's contract was terminated, Lockheed had not progressed the physical construction and installation to a state where SIST testing could be conducted. Rahle Decl. ¶10.

550.   Additionally, as of the date of Lockheed's termination, the previous testing that had been conducted failed to verify that NYCT would receive the security system MTA had contracted for. Rahle Decl. ¶11.

VI.   Facts Regarding Lockheed's Damages Claim

551.   MTA Payment Estimate No. 40 is annexed as Exhibit C to MTA's Fifth Supplemental Interrogatory Response, dated March 4, 2013.   Ex. MTA137 at Ex. C, Pay Estimate 40.

552.   Payment Estimate 40 includes a record of the Total Contract Price ("TCP") as adjusted by contractually agreed upon change orders, the amount of disputed credits to which the

MTA deducted from the Total Contract Price, the amount retained from the Contractor's approved progress payments for security, and the amount paid to the Contractor. Id.; see also Ex. J10.4 at Arts. 1.02, 3.01, 3.03.

553.   Payment Estimate 40 shows that, through May 22, 2009, the Total Contract Price prior to adjustment for disputed credit items was $322,803,673. See Ex. MTA137 at Ex. C, Pay Estimate 40.

554.   Payment Estimate 40 shows two credit amounts that were taken by MTA – one for $2,781,143; the other for $12,638,785. Deducting these items from the TCP results in an adjusted TCP of $307,383,745, as of May 22, 2009. Id.

555.   An additional credit was recorded post-default by MTA for $16,230,883.54. Ex. MTA137 at Interrog. Respon. 2, para. 2.

556.   Payment Estimate 40 shows that, through May 22, 2009, MTA credited $253,783,731 for approved progress payments, out of which it retained $12,705,019.12 for security, and released to Lockheed the sum of $241,078.712.65. See Ex. MTA137 at Ex. C, Pay Estimate 40.

557.   The amount credited by MTA for progress payments ($253,783.731) represents "the fair and reasonable value" of the work performed through May 22, 2009. Id.; see also Ex. J10.4 at Art. 3.05.

558.   In an October 28, 2010 supplemental interrogatory response, Lockheed proffered a calculation which purported to show what its damages were under Article 2.09 of the Contract (Termination for Convenience by the Authority). See Ex. MTA138 at Interrog. Respon. 1 (referencing Lockheed's "Second Claim for Relief").

559.   In its October 28, 2010 supplemental interrogatory response, Lockheed stated that the lesser of the "actual costs or fair and reasonable value" of its work totaled $323,058,862. Id.
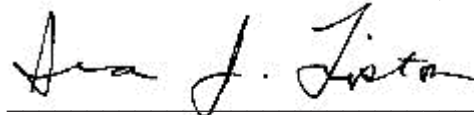
560.   In its October 28, 2010 supplemental interrogatory response, Lockheed stated that the TCP for the Contact is $361,177,666.   Id.

561.   In discovery, MTA sought from Lockheed its basis for both the "actual costs or fair and reasonable value" ($323,058,862) and the TCP ($361,177,999) figures it used in its interrogatory response concerning its damage claim pursuant to Article 2.09 of the Contract. Ex. MTA139, [MTA's] Combined Fourth Set of Interrogs. and Sixth Req. for Production of Docs. dated Feb. 16, 2011 at pp. 2-3.

562.   Lockheed never responded to MTA's Interrogatory or any follow-up demands for this information, and its deposition witness on damages professed no knowledge as to the basis for these figures or how they were calculated. See Second Lipton Declaration.

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102